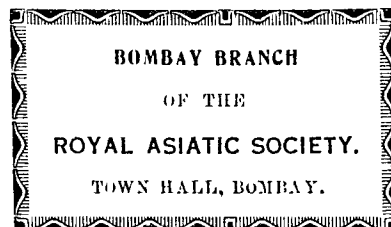


*Report of the
Inspection of Mines in India
1897 to 1904
(except for 1902)*



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REPORT
OF THE
INSPECTION OF MINES IN INDIA,

FOR THE
YEAR ENDING THE 31ST DECEMBER

1897.

BY
JAMES GRUNDY, Esq.,
INSPECTOR OF MINES IN INDIA.

134443



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S U M M A R Y.

Summary of the Report of the Inspection of Mines in India for the year ending the 31st December 1897.

Pages.	Sections.	
1	2	Dates covered by this and previous annual reports. The first report was for the period from January to the end of June 1894, and dealt only with the Coal Mines in Bengal. The second report, being for the year ending the 30th June 1895, gave my own work from June to June, but dealt with the statistics for the calendar year. The third report was similar to the second. The fourth report gave the statistics for the calendar year ending the 31st December 1896, and my own work for the second half of the year. This report appeared to be necessary to prepare the way for future reports dealing solely with the previous calendar year, in accordance with the instructions I had received. The present, or fifth, annual report has been prepared for the calendar year ending the 31st December 1897.
2	3	A brief summary is given in this section of all the 14 strictly mining reports that I have prepared on India mines and mining.
3	4	Up to the present, the greater number of the Bengal Coal mines have been inspected and reported on. Full inspections have been made, and special reports prepared for the following mines :— The Mysore gold mines. Warora Colliery. Mohpani Colliery. Umaria Colliery. Singareni Colliery, Hyderabad (Deccan). Dandot, Pidh, and Baghanwallah Coal Mines in the Punjab. The Coal mines in the Sor range near Quetta. The Mayo Salt mine Khewrah, and the other salt mines in the Salt range, Punjab. The Coal Mines at Khost and at Shahrig, Baluchistan. There are still a large number of scattered mines that I have not yet inspected, these include the following :— The Mica mines, principally in Hazaribagh, only a few of the very large number of these mines have been inspected. A few stone mines. Some sundry small mines. The mines in Assam. The mines in Burma.
3	5	My own work during the year. This included personal attention to every detail of the clerical work. Inspections and enquiries as to fatal accidents at coal and mica mines. Interviews with mine-owners and representatives at the mines, at their offices, and at mines. Special inspections with reference to mine fires, and also as to dangerous standing water. I suffered greatly from malarial fever contracted whilst out inspecting, and I was allowed to take three months' privilege leave.
4	6	The List of mines in India. A vast amount of work and time was expended on this List in order to make it as complete and accurate as possible, still it is not as complete as it should be.

Pages.	Sections.																												
63	7	A supplementary list is given to cover doubtful cases and add to the completeness.																											
76	8	A list of new mines started, and old mines.																											
80	9	Abandoned or ceased working, is also given.																											
81	10	The returns. The returns are still being sent in very irregularly and badly, and some of the most important were not sent at all.																											
		It is impossible to give accurate and reliable statistics from the few irregular returns received, and I trust the time is near at hand when the sending of accurate returns will be compulsory.																											
83	12	Returns were received for 132 coal mines in the Bengal Province, whereas the list of mines shows 233 mines. Difference 101.																											
		<table> <tr> <th></th><th>Number of mines for which returns were received.</th><th>Number of mines shown on the List of mines in India.</th></tr> <tr> <td>Indian Coal Mines</td><td>148</td><td>253</td></tr> <tr> <td>Bengal Mica Mines</td><td>87</td><td>383</td></tr> <tr> <td>Madras „ „</td><td>31</td><td>77</td></tr> <tr> <td>Stone mines</td><td>...</td><td>40</td></tr> <tr> <td>Gold „</td><td>3</td><td>26</td></tr> <tr> <td>Limestone</td><td>...</td><td>36</td></tr> <tr> <td>Other differences are shown on pages 83 to 86 .</td><td></td><td></td></tr> <tr> <td>Total mines .</td><td>284</td><td>856 Difference 572</td></tr> </table>		Number of mines for which returns were received.	Number of mines shown on the List of mines in India.	Indian Coal Mines	148	253	Bengal Mica Mines	87	383	Madras „ „	31	77	Stone mines	...	40	Gold „	3	26	Limestone	...	36	Other differences are shown on pages 83 to 86 .			Total mines .	284	856 Difference 572
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87	13	Mines, minerals, and employés. The following are the totals for the several minerals and Provinces.																											

PROVINCE, ETC.	Number of Mines.	Weight wrought, or Output.	NUMBER OF PERSONS EMPLOYED.						
			BELOW-GROUND.		Total Below-ground.	ABOVE-GROUND.		Total Above-ground.	Total Below and Above-ground.
			Males.	Females.		Males.	Females.		
		Tons.							
Bengal—Coal	132	3,123,090	7,829	3,577	11,406	4,746	3,047	7,793	44,027
Assam—Coal	6	185,524	465	311	776	543	238	781	1,557
Central Provinces—Coal	11	256,411	2,289	364	2,653	290	57	347	3,000
Punjab—Coal	3	92,792	1,451	...	1,451	879	1	880	2,331
Hyderabad (Deccan)—Coal	6	365,550	4,333	1,071	5,404	922	129	1,051	6,455
Baluchistan—Coal	6	12,153	197	...	197	115	10	125	322
All India—Total Coal	...	4,035,517							
		Maunds.							
Bengal—Mica	87	11,589	8,003	2,329	10,332	16,656	8,149	24,805	35,137
Madras—Mica	31	See page 92.	6,001	3,358	9,355	748	390	1,138	10,993
All India—Total Mica	...	20,702							
Hyderabad (Deccan)—Gold	2	255 oz. of gold. 1,653 tons of ore.	986	...	986	480	273	753	1,739

PROVINCE, ETC.	Number of Mines.	Weight wrought, or Output.	NUMBER OF PERSONS EMPLOYED.						
			BELOW-GROUND.		Total Below-ground.	ABOVE-GROUND.		Total Above-ground.	Total Below and Above-ground.
			Males.	Females.		Males.	Females.		
Madras—Gold . . .	1	... Tons.	235	...	235	95	35	130	365
Punjab—Rock Salt . . .	3	63,836	765	531	1,296	112	10	122	1,418
Bengal—Slate . . .	4	...	4	...	4	201	110	311	315
On page 95 is given the total numbers of persons employed as follows :—									
All India—Year 1896 . . .	...	...	15,904	6,328	22,232	10,082	7,948	18,030	40,262
" " 1897 . . .	...	...	31,947	11,041	42,988	28,188	14,050	42,238	110,554

These totals do not include those employed in Mysore and Rajputana.

Pages.	Sections.	
96	15	Accidents. I received notices of 54 separate fatal accidents by which 77 persons were killed. The number of persons reported to be killed in the year 1896 was 66. Twenty of the persons were killed in Bengal.
97	...	I have given particulars of all the accidents, and have also given comparative figures relating to the places and causes of the accidents.
116	19	With reference to the accidents for 1897 the remarks I have made on them should be noted.
126	22	Mysore mines. The particulars for the Mysore mines, for the year 1897, had not come to hand. The report for 1896 came in time to insert the particulars given. Reports for this State are not now sent to me direct, but the Resident is very kindly sending me reports, and reports of the Inspector of Mines for Mysore.
132	23	The Earthquake.—This happened near about 5 P.M. on Saturday the 12th of June 1897, and though some damage was done to the mines, both above and below ground, it was not nearly so disastrous as might have been expected. Still, the bad effects of the earthquake on many mines is probably greater than has up to now been ascertained, for the behaviour of a few mines where the coal was cut out into pillars, shows that it very considerably lessened the power of those coal pillars to support the strata above. This should be kept in mind, and its effects guarded against as far as possible, where mines are commencing to work at the standing pillars. I have given some replies to enquiries.

REPORT
OF THE
INSPECTION OF MINES IN INDIA,
FOR THE CALENDAR YEAR ENDING
THE 31ST DECEMBER 1897.

PRELIMINARY.

1. I have the honour to submit my Annual Report for the calendar year ending the 31st December 1897, in compliance with the instructions referred to below.

2. The dates covered by this and previous Annual Reports.

Now that the period to be covered by the annual returns, and by my Annual Reports, is in future to be the calendar year, it may be well to give a brief statement of the periods covered by this and previous annual reports.

(1.) The report for the year ending the 30th June 1894.

I started from Calcutta on my first inspection tour in India on the 18th of January 1894; and being instructed to submit an Annual Report in July of each year, I prepared a report for the period from January to the end of June 1894. This is usually called my first Annual Report, and dealt only with the coal mines in Bengal.

(2.) The report for the year ending the 30th June 1895.

As my first report was principally compiled from the work I actually did at the mines up to the end of June 1894, and did not contain any statistics from any annual returns received, this second report dealt with my own work from the 30th June 1894 to the 30th June 1895; but it dealt with the statistics compiled from the returns for the calendar year 1894.

The principal reasons for two separate periods being covered by the report were (a) the report was to be submitted in July of each year; (b) from June to June covered a year's work for myself on which I had to report; (c) the statistics take a very long time to prepare and get through the press, so that they could not possibly be given for the period up to June, nor were they received in a way to allow of that; in fact, they could not be got in for the previous year in time to get the report ready as required; (d) it was advisable to give the statistics from the returns for the calendar year, in order to make them comparable with those for the United Kingdom and other parts of the world. But the variety of dates covered by the returns received, and the irregularity and delay which characterized their receipt, made the preparation of the statistics a most slow and troublesome proceeding.

(3.) The report for the year ending the 30th June 1896.

This report showed my own work right up to the end of June 1896, but the statistics were for the calendar year 1895.

(4.) The instructions I have recently received, to the effect that the Annual Report should in future be for the calendar year, and be submitted to the Government by the 1st of July annually, made it necessary to prepare the next report for the period the calendar year ending the 31st December 1896, in which my own work could only be given for the second half of the year 1896; but the statistics were for the whole calendar year. This report prepared the way for future reports dealing solely with the previous calendar year.

- (5.) The present report "for the year ending the 31st December 1897" deals only with matter for the calendar year 1897.

It will thus be seen that five "Annual Reports" have been prepared for the period of four years from January 1894 to December 1897.

But the first of these reports dealt only with my own work and statistics collected at the mines by myself.

3. A brief statement of all my printed reports up to date.

The following list of my reports on Indian mines, that have been printed, and in the order of issue, may be useful for reference.

- (1.) Annual Report for the year ending the 30th June 1894. This dealt principally with the coal mines in Bengal.

- (2.) Report of the inspection of the gold mines in the Mysore State, South India.

This report dealt, principally, with the Kolar Gold Mines, but the other gold mines in the Mysore State were included.

- (3.) Report on the inspection of the Warora Colliery.

This dealt with the Warora Colliery only.

- (4.) Report on the inspection of the Mohpani Colliery.

This dealt with the Mohpani Colliery only.

- (5.) Report on the inspection of the Umaria Colliery.

This dealt with the Umaria Colliery only.

- (6.) Report on the inspection of the Singareni Colliery, Yellandu, Hyderabad (Deccan.)

This dealt with the Singareni Colliery only.

- (7.) Annual Report for the year ending the 30th June 1895.

This was the first report dealing generally with Indian mining, and to contain the "List of mines in India," and statistics for Indian mines. It also contained a glossary of Indian mining terms; as well as sample reports, report books, and certificates recommended for use at Indian mines.

- (8.) Report on the inspection of the coal mines at Dandot, Pidh, and Baghanwalla, salt range near Khewrah, Jhelum District, Punjab.

This report dealt with these coal mines only.

- (9.) Annual Report for the year ending the 30th June 1896.

This report gave the mining statistics for the calendar year 1895.

- (10.) Reports on the inspection of the coal mines in the Sor Range of hills, near to Quetta.

This set of reports dealt only with the five coal mines in the Sor Range.

- (11.) Annual Report for the year ending the 31st December 1896.

This report dealt with mining matters for the calendar year 1896.

- (12.) Report on the inspection of the Mayo Salt Mine, Khewrah, Jhelum District, Punjab.

This report dealt principally with the large Mayo Salt Mine, but included matter dealing with most of the other salt mines in the Salt Range; as well as the alum shale mine at Kálábágh.

- (13.) Report on the inspection of the Khost and the Shahrigh coal mines, Baluch stan.

This dealt exclusively with these mines.

- (14.) The present report deals with Indian mining for the calendar year 1897.

To the above list might have been added the reports, etc., dealing with mining legislation for India.

4. The Indian mines that have been, and that remain to be inspected and reported on.

It will be seen, from the above, that up to date my reports on Indian mines stand as follows :—

- (1.) The Bengal coal mines have been reported on in a way that is not completely general and yet is not special for the individual mines.
- (2.) All the mines in India have been four times reported on in a general way. But a large number of the mines have not been inspected
- (3.) Special and full reports have been written on each of the following mines, or sets of mines, after very thorough inspections, namely :—

All the gold mines that were working in the Mysore State in the year 1894. Warora Colliery, Mohpani Colliery, and Umaria Colliery in the Central Provinces.

The Singareni Colliery, Hyderabad (Deccan).

The Dandot, Pidh, and Baghanwalla coal mines in the Punjab.

The coal mines in the Sor Range near Quetta.

The Mayo salt mine, Khewrah, and the other salt mines in the Salt Range, Punjab.

The coal mines at Khost and at Shahrig, Baluchistan.

To complete the inspections and reports on almost all the mines in India will require the following further inspections and reports on—

- (1.) The mica mines, principally in Hazaribagh. Only a few of these have been inspected.
- (2.) A few stone mines.
- (3.) Some sundry small mines.
- (4.) The mines in Assam.
- (5.) The mines in Burma.

5. Work.

My own work for the year included the following :—

- (1.) I changed into a new office; this took up a considerable time before everything was settled.
- (2.) The clerical or office work occupied as much time as is usually given to office work by those who have no additional duties.
- (3.) Inspections and enquiries as to accidents at coal mines.
- (4.) Inspections and enquiries as to accidents at mica mines.
- (5.) Conference with owners of mica mines.
- (6.) Special inspections at coal mines on account of mines being on fire.
- (7.) Special inspection on account of a dangerous accumulation of standing water.
- (8.) Interviews with mine officials.
- (9.) I was allowed privilege leave for three months, during which time I went to England. This had the good effect of freeing me of the malarial fever that I contracted when doing very trying and hot work in the Punjab, Baluchistan, and Hazaribagh, and which greatly interfered with my work.
- (10.) I may here say that the work of my office has been carried on continuously ever since I came to India in 1893, not even being broken during gazetted holidays; myself and staff having worked almost always during those holidays.

6. The following is the "List of mines in India" compiled for the end of the year 1897. Very great trouble has been taken with the list to make it as complete and as correct as appeared to be possible.

6.—LIST OF MINES IN INDIA COMPILED FOR THE YEAR 1897.

No.	Name of mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mine—State, Province, Division, Sub-division or District.	Nearest or most convenient railway or other station.	Distance from station.	Means available for getting to mine from station.	Mineral wrought.	(REMARKS. Nearest Thana, etc.)
	1	2	3	4	5	6	7	8	9
				BENGAL PROVINCE.					
				BURDWAN DIVISION.					
				<i>Burdwan District.</i>					
				RANIGANJ.					
1	Nimcha .	Bengal Coal Co., Ltd., Office, 10/1, Old Court House Street, Calcutta.	Manager, Bengal Coal Co.'s Raniganj mine, Raniganj, E. I. R.	Raniganj Sub-division .	Raniganj .	{ 4 miles 2 "	By riding . . . " carriage . . .	Coal . . .	Raniganj.
2	Searsole .								
3	Mudhabpur .	Ditto	Ditto	Ditto	Ditto	4 "	Ditto	Do.	Ditto.
4	Singaran Valley Colliery.	F. Guyer, Esq.	Manager, Singaran Valley Colliery, Topsi, E. I. R.	Ditto . . . . .	?	.....	.....	Do.	
5	Pooranadeep .	A. Whyte, Esq.. . . .	A. Whyte, Esq., owner of Pooranadeep mine, Raniganj, E. I. R.	Ditto	Raniganj	5 miles	By carriage . . .	Do.	
6	Jote Janaki .	Raniganj Coal Association, Ltd.	Manager, Raniganj Coal Association's mine, Topsi, E. I. R.	Ditto	Ditto	5 "	Ditto	Do.	Raniganj.
7	Nundi	Adjai Coal Co.	Manager, Adjai Coal Co.'s Nundi mine, Raniganj, E. I. R.	Ditto . . . . .	.....	.....	.....	Do.	
8	Searsole	K. R. Malia and K. D. Malia.	Manager, K. R. and K. D. Malia's Searsole mine, Raniganj, E. I. R.	Ditto	Raniganj	2 miles	By carriage . . .	Do.	Raniganj.

No.	Jamaria.	Ditto.	Ditto.	Ditto.	Raniganj or Kalipahari.	4 3 2	" " "	" " "	Ditto By riding. " carriage.	Do.	Ditto.
9	Roghunath Chak	Jagan Nath Marwari.	Manager, Jagan Nath Marwari's Roghunath Chak mine, <i>via</i> Raniganj E. I. R.	Ditto	Raniganj	4	"	"	Ditto	Do.	Ditto.
10	New Bonbohal	Ditto	Ditto	Ditto	Ditto	3	"	"	Ditto	Do.	Ditto.
11	Mithapur	Loki Nath Nundy	Mithapur	Ditto	Ditto or Nandy	4	miles	"	Horse or palanquin.	Do.	Ditto.
12	Munghulpur	New Beerbhoom Coal Co.	Manager, New Beerbhoom Coal Co.'s Munghulpur mine, Raniganj, E. I. R.	Ditto	Raniganj	3	"	"	By carriage	Do.	Raniganj.
13	Bonbohal	Native, Friend & Co.	Manager, Native, Friend & Co.'s Bonbohal mine, Raniganj, E. I. R.	Ditto	Ditto	10	"	"	Ditto	Do.	Ditto.
14	Dubrona	Oodiya Ch. Mundal, Address, 114, Banitola Hautkola, Calcutta.	Manager, Oodiya Ch. Mandal's Dubrona mine, Raniganj, E. I. R.	Ditto	.....	.....	"	"	.....	Do.	Ditto.
15	Mamudpur	H. C. Chongder, Guskarah.	Manager, H. C. Chongder, Guskarah's Mamudpur mine, Raniganj.	Ditto	.....	.....	"	"	.....	Do.	Ditto.
16	Ghoosic	Ram Bhundoo Chatterji	Manager, Ram Bhundoo Chatterji's Ghoosic mine, Kalipahari, E. I. R.	Raniganj sub-division	Kalipahari	1	mile	"	By riding	Coal	Raniganj.
17	Ditto	Boleram Coal Co., Ghazipur.	Manager, Boleram Coal Co.'s Ghoosic mine, Kalipahari, E. I. R.	Ditto	Ditto	1	"	"	Ditto	Do.	Ditto.
18	Ghoosic (Mosla)	Burdwan Coal Co.	Manager, Burdwan Coal Co.'s Ghoosic mine, Kalipahari, E. I. R.	Ditto	Ditto	1	"	"	Ditto	Do.	Ditto.
19	Mosila	Purna Ch. Bagchi	Manager, Purna Chundra Bagchi's Mosila mine.	Ditto	Ditto	1	"	"	Horse or palki	Do.	Assansol. Started during first half-year of 1897.

LIST OF MINES IN INDIA—*contd.*

No.	Name of mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mine—State, Province, Division, Sub-division or District.	Nearest or most convenient railway or other station.	Distance from station.	Means available for getting to mine from station.	Mineral wrought.	REMARKS. (Nearest Thana, etc.)
		2	3	4	5	6	7	8	9
				BENGAL PROVINCE— <i>contd.</i> BURDWAN DIVISION— <i>contd.</i> <i>Burdwan District—contd.</i>					
21	North Ghoosic	Indian Coal Co.	Manager, Indian Coal Co.'s North Ghoosic mine, Kalipahari, E.I.R.	Raniganj Sub-division	Kalipahari	2 miles	.....	Coal.	
22	Bakulia	Babus Rakhai Das Chakravarti and Bansidhar Laik.	Manager, Bakulia Colliery, <i>via</i> Satara.	Bankura district	Kalipahari Railway Station.	4 "	Carts	Do.	
23	West Ghoosic	Babu Hiram Ch. Pal Chowdhary.	Manager, Hiram Ch. Pal Chowdhary's West Ghoosic mine, Kalipahari, E. I. R.	Raniganj Sub-division	Ditto	200 yards	Horse	Do.	This mine was said to be abandoned during the first half-year of 1897.
24	Damrah	Damrah Coal Co.	Manager and Proprietor, Damrah Coal Co.'s Damrah mine, Kalipahari, E. I. R.	Ditto	Ditto	.....	.....	Do.	
25	Ghoosic	Ditto	Manager, Damuda Coal Co.'s Ghoosic mine, Sitarampur, E. I. R.	Ditto	Ditto	1 mile	By riding	Do.	Raniganj.
26	East Ghoosic	Simon Creet, Esq.	Manager, Mr. Simon Creet's East Ghoosic mine, Kalipahari, E.I.R.	Ditto	Kalipahari	" "	.....	Do.	

27	Chatapathar	Dwarka Nath Khettri.	Manager, Dwarka Nath Khetri's Chatapathar mine, Kalipahari, E.I.R.	Ditto	.	.	.	Ditto	.	1 mile	.	By riding or trolly.	Do.	Raniganj.
28	Nicha	Nadia Coal Co..	Manager, Nadia Coal Co.'s Nicha mine, Kalipahari, E. I. R.	Ditto	.	.	.	Ditto	.	.....	.	.....	Do.	
29	Keshabgunge	R. L. Dutta & Co.	Manager, R. L. Dutta & Co.'s Keshabgunge mine, Kalipahari, E.I.R.	Ditto	.	.	.	Ditto	.	.....	.	.....	Do.	
30	Ditto	East India Coal Co.	Manager, East India Coal Co.'s Keshabgunj mine.	Ditto	.	.	.	Kalipahari station.	railway	$\frac{1}{2}$ mile	.	Horse or palki .	Do.	Assansol. Started during first half-year of 1897.
31	Ditto	Standard Coal Co.	Manager, Standard Coal Co.'s Keshabgunge mine, Kalipahari, E.I.R.	Ditto	.	.	.	Ditto	.	.....	.	.....	Do.	
32	Ditto	Poolchand Marwari	Manager, Poolchand Marwari's Keshabgunj mine, Kalipahari, E.I.R.	Ditto	.	.	.	Ditto	.	.....	.	.....	Do.	
33	Baghboni	Baghboni Coal Co.	Manager, Baghboni Coal Co.'s Baghboni mine, Kalipahari, E. I. R.	Ditto	.	.	.	Ditto	.	.....	.	.....	Do.	
ASSANSOL.														
34	Charanpore	Messrs. Apcar & Co., 19, Radha Bazar, Calcutta.	Manager, Messrs. Apcar & Co.'s Charanpore mine, Assansol, E. I. R.	Raniganj Sub-division	.	.	.	Assansol	.	5 miles	.	By trolly or private line.	Coal.	Assansol.
35	Ditto	Reliance Coal Co., Ltd.	Manager, Reliance Coal Co.'s Charanpore mine.	Ditto	.	.	.	Ditto	.	2 "	.	Ditto	Do.	Ditto.
36	Bora Chak	Messrs. Apcar & Co., 19, Radha Bazar, Calcutta.	Manager, Messrs. Apcar & Co.'s Bora Chak mine, Assansol, E. I. R.	Ditto	.	.	.	Assansol or Sitarampur.	Sitaram-	2 "	.	By riding	Do.	Barakar out-post.
37	Nawadi	Mr. Whyte	Nawadi P. O., Assansol,	Ditto	.	.	.	Assansol station, E. I. R.	railway	4 "	.	By horse or palanquin	Do.	

LIST OF MINES IN INDIA—*contd.*

No.	Name of mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mine—State, Province, Division, Sub-division or District.	Nearest or most convenient railway or other station.	Distance from station.	Means available for getting to mine from station.	Mineral wrought.	REMARKS. (Nearest Thana, etc.)
	1	2	3	4	5	6	7	8	9
BENGAL PROVINCE— <i>contd.</i>									
BURDWAN DIVISION— <i>contd.</i>									
<i>Burdwan District—contd.</i>									
38	Bhanara	C. B. Coal Co.	Manager, C. B. Coal Co.'s Bhanara mine.	Raniganj Sub-division	Domohan railway station.	1½ miles	Horse or paliki	Coal.	Assansol. Started during first half of year 1897.
39	Dhadka	New Beerbhoom Coal Co.	Manager, New Beerbhoom Coal Co.'s Dhadka mine, Assansol, E. I. R.	Ditto	Assansol	2 "	Ditto	Do.	Assansol.
40	Ghoosic	Kenchka Coal Co.	Manager, Kenchka Coal Co.'s Ghoosic mine.	Ditto	Kalipahari	½ mile	Horse	Do.	
41	Kalipahari	Baboo Beni Madhab Mukherjee.	Manager, Beni Madhab Mukherjee's Kalipahari mine, Kusadanga.	Ditto	Ditto	½ "	Ditto	Do.	
42	Ditto	South Ringa Coal Co.	Manager, South Ringa Coal Co.'s Kalipahari mine, Kalipahari.	Ditto	Kalipahari railway station.	½ "	Horse or paliki	Do.	Assansol. Started during first half of year 1897.
ASSANSOL.									
43	Charanpore	Babu Udoy Chander Chakravarty.	Manager, Udoy Chander Chakravarty's Charanpore mine, Charanpore.	Raniganj Sub-division	Assansol	5 miles	Trolly	Coal.	

LIST OF MINES IN INDIA—*contd.*

No.	Name of mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mine—State, Province, Division, Sub-division or District.	Nearest or most convenient railway or other station.	Distance from station.	Means available for getting to mine from station.	Mineral wrought.	REMARKS. (Nearest Thana, etc.)
	1	2	3	4	5	6	7	8	9
BENGAL PROVINCE— <i>contd.</i>									
BURDWAN DIVISION— <i>contd.</i>									
<i>Burdwan District—contd.</i>									
55	Dhundabad . . .	New Manbhum Coal Co.	Manager, New Manbhum Coal Co.'s Dhundabad mine.	Raniganj Sub division	Sitarampur railway station.	4 miles	Palki from Sitarampur or Alipur hut (station)	Coal . . .	This mine is situated at 1½ mile on the Salanpur-Shamdi branch line, E. I. R., or about 3 miles from the Alipur block hut (station), and was started during first half of year 1897.
56	Bara Dhemu . . .	Joint Company . .	Bara Dhemu . .	Ditto . . .	Sitarampur, E. I. R.	2 "	Horse or palki .	Do.	
57	Luchipur . . .	Joint Stock Co. . .	Manager, Joint Stock Co.'s Luchipur mine, Sitarampur, E. I. R.	Ditto . . .	Sitarampur . .	1 mile	By trolly . .	Do. . .	Barakar out-post.
58	Barmonnia . . .	Damuda Coal Co. .	Manager, Damuda Coal Co.'s Barmonnia mine, Sitarampur, E. I. R.	Ditto . . .	Ditto . . .	3 miles	" riding . .	Do. . .	Ditto.

59	Damuda	.	.	.	Ditto	.	.	.	Manager, Damuda Coal Co.'s Damuda mine, Sitarampur, E. I. R.	Ditto	.	.	.	.....	Ditto	.	Do	.	Ditto.
60	Belrooi	.	.	.	New Beerhoom Coal Co., Ltd.	.	.	.	Manager, New Beerhoom Coal Co.'s Belrooi mine, Sitarampur, E. I. R.	Ditto	.	.	.	1 mile	Ditto	.	Do.	.	Ditto.
61	Luchipur	.	.	.	Bhola Nath Dhur & Co.	.	.	.	Manager, Bhola Nath Dhur & Co.'s Luchipur mine, Sitarampur, E. I. R.	Ditto	.	.	.	1 "	By trolly	.	Do.	.	Ditto.
62	Ditto	.	.	.	Jaggesur Ray & Co.	.	.	.	Manager, Jaggesur Ray & Co.'s Luchipur mine, Belrooi, Sitarampur, E. I. R.	Ditto	.	.	.	.....	.....	.	Do.	.	
63	Bamandiah	.	.	.	Bhola Nath Dhur & Co.	.	.	.	Manager, Bhola Nath Dhur & Co.'s Bamandiah mine, Sitarampur, E. I. R.	Ditto	.	.	.	1 mile	By trolly	.	Do.	.	Ditto.
64	Ditto	.	.	.	Moodun Sodun Roy	.	.	.	Manager, Moodun Sodun Roy's Bamandiah mine, Belrooi, Sitarampur, E. I. R.	Ditto	.	.	.	.....	.....	.	Do.	.	
65	Salanpore	.	.	.	The Borrea Coal Co.	.	.	.	Salanpore, Sitarampur Post Office.	Ditto	.	.	.	4 miles	By palki	.	Do	.	Assansol-Samdi out-post.
66	Shibdasore	.	.	.	Ditto	.	.	.	Ditto	Ditto	.	.	.	4½ "	Ditto	.	Do.	.	Ditto
67	Khondka	.	.	.	Ditto	.	.	.	Ditto	Ditto	.	.	.	4 "	Ditto	.	Do.	.	Ditto
68	Rampore	.	.	.	Ditto	.	.	.	Ditto	Ditto	.	.	.	4 "	Ditto	.	Do.	.	Ditto
69	Sakjora	.	.	.	Ditto	.	.	.	Ditto	Ditto	.	.	.	4 "	Ditto	.	Do.	.	Ditto
70	Bamandiah	.	.	.	P. C. Dutt	.	.	.	Manager, P. C. Dutt's Bamandiah mine, Sitarampur, E. I. R.	Ditto	.	.	.	.....	.....	.	Do.	.	Ditto
71	Mouthdih	.	.	.	Burdwan Coal Co.	.	.	.	Manager, Burdwan Coal Co.'s Mouthdih mine, Sitarampur, E. I. R.	Ditto	.	.	.	3 miles	By riding	.	Do.	.	Barakar out-post.

LIST OF MINES IN INDIA—*contd.*

No.	Name of mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of Mine—State, Province, Division, Sub-division or District.	Nearest or most convenient Railway or other station.	Distance from station.	Means available for getting to mine from station.	Mineral wrought.	REMARKS. (Nearest Thana, etc.)
			3	4	5	6	7	8	9
				BENGAL PROVINCE— <i>contd.</i>					
				BURDWAN DIVISION— <i>contd.</i>					
				<i>Burdwan District—contd.</i>					
72	Sunder Chak .	Private .	Manager, Sunder Chak mine, Sitarampur, E. I. R.	Raniganj sub-division .	Sitarampur .	3 miles .	By carriage .	Coal .	Barakar out-post.
73	Neamatpur .	Joint Stock Co. .	Manager, Joint Stock Co.'s Neamatpur mine, Sitarampur, E. I. R.	Ditto .	Ditto .	2 " .	" riding .	Do. .	Ditto
74	Soodilu .	Babu Niroda Prosad Ker and others.	Manager, Niroda Prosad Ker's Soodilu mine, Soodilu.	Ditto .	Ditto .	1½ " .	" horse .	Do. .	
75	Khoyrabad .	Joint Stock Co. .	Manager, Joint Stock Co.'s Khoyrabad mine, Sitarampur, E. I. R.	Ditto .	Ditto .	10 " .	By private line and trolley.	Do. .	Barakar out-post.
76	Pannuria .	Ditto .	Manager, Joint Stock Co.'s Pannuria mine, Sitarampur, E. I. R.	Ditto .	Ditto .	12 " .	By riding or trolley.	Do. .	Ditto
77	Bamandiah .	D. Khettri .	Manager, D. Khettri's Bamandiah mine, Sitarampur, E. I. R.	Ditto .	Ditto .	3 " .	By private line or trolley.	Do. .	Ditto
78	Chota Dhemo .	Baman Das Mukherji .	Manager, Baman Das Mukherji's Chota Dhemo mine, Sitarampur, E. I. R.	Ditto .	Ditto .	2 " .	By riding .	Do. .	Assansol.

79	Ditto.	Ram B. Chatterji	Manager, Ram B. Chatterji's Chota Dhemomine, Sitarampur, E. I. R.	Ditto	.	.	.	.	.	Ditto	.	Do.	.	Ditto
80	Mouthdih	Mouthdih Coal Co.	Manager, Mouthdih Coal Co.'s Mouthdih mine Sitarampur, E. I. R.	Ditto	.	.	.	.	.	Ditto	.	Do.	.	Barakar out-post.
81	Mouthdih	Jadu Gopal Chatterji	Manager, Jadu Gopal Chatterji's Mouthdih mine, Sitarampur, E. I. R.	Raniganj Sub-division	.	.	.	.	.	Sitarampur	.	3 miles	.	By riding
82	Chota Dhemomine	Laik & Co.	Manager, Laik & Co.'s Chota Dhemomine, Sitarampur, E. I. R.	Ditto	.	.	.	.	.	Ditto	.	Do.	.	Assansol.
83	Mouthdih	Gopal Chandra Mitra	Manager, Gopal Chandra Mitra's Mouthdih mine, Sitarampur, E. I. R.	Ditto	.	.	.	.	.	Ditto	.	Do.	.	Barakar out-post.
84	Raghunathbati	C. F. Lial, Esq.	Raghunathbati, P. O. Sitarampur, Burdwan.	Ditto	.	.	.	.	.	Sitarampur railway station, E. I. R.	.	2 "	.	By horse or palanquin.
85	Bara Dhemomine	Ragu Nandan Pronia.	Bara Dhemomine, P. O., Sitarampur.	Ditto	.	.	.	.	.	Ditto	.	1½ "	.	Ditto
86	Antonia and Kendua	Bengal Iron and Steel Co., Ltd.	Manager, Bengal Iron and Steel Co.'s Antonia and Kendua mines, Sitarampur, E. I. R.	Ditto	.	.	.	.	.	Barakar	.	1 mile	.	By riding
87	Deshherghur	Equitable Coal Co., Ltd.	Manager, Equitable Coal Co.'s Desherghur mine, Barakar, E. I. R.	Ditto	.	.	.	.	.	Ditto	.	3 miles	.	By carriage
88	Sanctoria	Bengal Coal Co., Ltd.	Manager, Bengal Coal Co.'s Sanctoria mine, Barakar, E. I. R.	Ditto	.	.	.	.	.	Ditto	.	3 "	.	Ditto
89	Laikdi	Ditto	Manager, Bengal Coal Co.'s Laikdi mine, Barakar, E. I. R.	Ditto	.	.	.	.	.	Ditto	.	.....	.	.....

LIST OF MINES IN INDIA—*contd.*

No.	Name of mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mine—State, Province, Division, Sub-division or District.	Nearest or most convenient railway or other station.	Distance from station	Means available for getting to mine from station.	Mineral wrought.	REMARKS. (Nearest Thana, etc.)
1		2	3	4		6	7	8	9
BENGAL PROVINCE— <i>contd.</i>									
BURDWAN DIVISION— <i>concl'd.</i>									
<i>Burdwan District—concl'd.</i>									
90	Borrea . .	New Reerbhoom Coal Co., Ltd.	Manager, New Reerbhoom Coal Co.'s Borrea mine, Barakar, E. I. R.	Raniganj Sub-division	Barakar . .	.....	.....	Coal . .	
91	Bagunia . .	R. H. Scorer, Esq.	Manager, Mr. R. H. Scorer's Bagunia mine, Barakar, E. I. R.	Ditto . .	Ditto . .	1 mile . .	By carriage . .	Do. . .	Barakar out-post.
92	Kumardubi . .	Barakar Coal Co., Ltd.	Manager, Barakar Coal Co.'s Kumardubi mine, Barakar, E. I. R.	Ditto . .	Ditto . .	.....	.....	Do. . .	
93	Gangootiya . .	Bengal Nagpur Coal Co., Ltd.	Manager, Bengal Nagpur Coal Co.'s Gangootiya mine, Barakar, E. I. R.	Ditto . .	Ditto . .	4 miles . .	By riding . .	Do. . .	Ditto.
94	Bagunia . .	Benori Lal Mukerji . .	Manager, Benori Lal Mukerji's Bagunia mine, Barakar, E. I. R.	Ditto . .	Ditto . .	.....	.....	Do. . .	
95	Ditto . .	Laik Coal Co. . .	Manager, Laik Coal Co.'s Bagunia mine, Barakar, E. I. R.	Ditto . .	Ditto . .	1 mile . .	By carriage . .	Do. . .	Ditto.
96	Ditto . .	Nundo Lal Garia . .	Manager, Nundo Lal Garia's Bagunia mine, Barakar, E. I. R.	Ditto . .	Ditto . .	1 " . .	Ditto . .	Do. . .	Ditto.

97	Ditto . . .	Jogendra Mukherji	Nath	Manager, Jogendro Nath Mukherji's Bagunia mine, Barakar, E. I. R.	Raniganj Sub-division	Barakar	1 mile	By carriage	Coal	Barakar out- post.
98	Ditto . . .	Deni M. Sandal		Manager, Deni M. Sandal's Bagunia mine, Barakar, E. I. R.	Ditto . . . Topsi.	Ditto	.....	.....	Do.	
99	Chhora . . .	Ondal Coal Syndicate		Manager, Ondal Coal Syndicate, Chhora mine.	Raniganj Sub-division	Topsi	3 miles	Horse	Do.	
100	Ditto . . .	Ondal Coal Co.		Manager, Ondal Coal Co.'s Chhora mine, Chhora.	Ditto . . .	Ditto	4 "	Ditto	Do.	Raniganj. Started during first half of year 1897.
101	Narsamuda . . .	Sitarampur Coal Co., Mr. Whyte.		Narsamuda, Post Office Assansol, Burdwan.	ONDAL, Raniganj Sub-division	Ondal Railway station.	4 miles	By horse or palanquin.	Coal.	
102	Kadima . . .	Syamlal Pal		Kodma, Post Office Assansol, Burdwan.	Ditto . . .	Ditto	4 "	.....	Do.	
103	West Baraboni	West Baraboni Coal Co.		Baraboni, Raniganj Sub-division.	Ditto . . .	Domobani	1 mile	By horse or palanquin.	Do.	
104	Bhas Kajari . . .	Kenaram Barman		Baraboni . . .	Ditto . . .	Ditto	2 miles	Ditto	Do.	
105	Joyramdanga . . .	New Beerbhumi Coal Co.		Joyramdanga . . .	Ditto . . .	Ditto	2 "	Ditto	Do.	
106	Bhanarda . . .	Bonowari Mukerji		Bhanarda, Post Office Charanpur.	Ditto . . .	Domobani railway station.	1 mile	Ditto	Do.	
107	Baraboni . . .	Babu Kanoo Lal Burman.		Manager, Babu K. L. Burman's Barboni mine.	Ditto . . .	Ditto	1 "	Ditto	Do.	There was no time given when this mine was started.
1	Daling Colliery	Private Syndicate		Octavius Steel and Co., 14, Old Court House Street, Calcutta. Also Pillan's hat Post Office, <i>via</i> Siliguri.	Daling District. Daling Sub-division, Kalimpong.	Dam Dim, B. D. Railway; Siliguri, N. B. S. Railway.	12 miles from Dam Dim and 19 miles from Siliguri.	Carts and pack traffic, by road or bridle track.	Do.	

	Pathalhia (Pathla- hia)	Messrs. F. F. Chres- tien & Co	Tisri <i>via</i> Bhurai Post Office.	Village Mahapur or Kar- haria in Koderma Sub- division.	Giridih	60 miles	By paliki-bearers or push-push.	Mica	Mines num- bered 1, 2, 7, 10, 13, 14 and 48, were not included in the return of "List of mines be- ing work- ed in 1897," nor includ- ed in the re- turn of "List of mines abandoned or discon- tinued dur- ing 1897."
6	Pathalhia								
7	Taraghatia								
8	Penraria (Peararia)								
9	Hudhudwa								
10	Karuantar								
11	Sidwatand (Sidh- watand)								
12	Lootpahari								
13	Charkipahari								
14	Bajarhari								
15	Satwa Khad								
16	Karipathal								
17	Latgodowa								
18	Mohchichya								
19	Safakhad								
20	Mahria (Mahuaria)								
21	Jatahi Khad (ortand)								
22	Sarlahi								
23	Satanrati								
		Babu Raj Krishna Sahana.	Village Moglamarun in Koderma.	Sub-division Koderma	Giridih, E. I. R.	60 "	Ditto	Do.	Koderma is 60 miles from Giri- dih along the very kutcha road by which the mica is conveyed to the rail- way sta- tion; but is 90 miles <i>via</i> the Grand Trunk Road and Burhee, which is the only road fit for any wheel- ed convey- ance.

LIST OF MINES IN INDIA—contd.

No.	Name of mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mine—State, Province, Division, Sub-division or District.	Nearest or most convenient railway or other station.	Distance from station.	Means available for getting to mine from station.	Mineral wrought.	Remarks. (Nearest Thana, etc.)
24	Sewa . . .	Babu Raj Krishna Sahana.	Baratand in Koderma	BENGAL PROVINCE—contd. CHOTA NAAGPUR DIVISION—contd. Hazaribagh District—contd.	5	6	7	8	9
25	Satanrati . . .								
26	Jamdaha (Jamoondaha) . . .								
27	Mowatand . . .								
28	Papoo (Papras) . . .								
29	Sirsira . . .								
30	Paparia . . .								
31	Sarlahi . . .								
32	Barakola . . .								
33	Lachmania . . .								
34	Teshra Khad . . .								
35	Hataria . . .								
36	Katahia . . .								
37	Sutua Khad . . .								
38	Baraharsa Khad . . .								
39	Kudar Katwa . . .								
40	Pasra Khad . . .								
41	Harharia . . .								
42	Basra Khad . . .								
43	Mehsoda . . .								
44	Mohsalia . . .								
45	Gamaria . . .								
46	Ghootia . . .								
47	Satalrati . . .								
48	Baralaktahia . . .								
49	Sarlahi . . .								
50	Dhaki Mohua . . .								
51	Chirchiria . . .								
52	Barharia . . .								
		W. R. Macdonald, Esq., or his agent, E. Lane, Esq.	Koderma . . .	Village Jaipur, village Baratand in Koderma Police station, Sub-division Hazaribagh.	Ditto . . .	60 "	Ditto . . .	Do.	Mines numbered 22, to 42 were said to be abandoned during the second half-year of 1897.

LIST OF MINES IN INDIA—*contd.*

No.	Name of mine.	Name of owner or Company.	Mine address of Owner or Company.	Situation of mine—State, Province, Division, Sub-division or District.	Nearest or most convenient railway or other station.	Distance from station.	Means available for getting to mine from station.	Mineral wrought.	REMARKS (Nearest Thana, etc.)
	1	2	3	4	5	6	7	8	9
200	Machwa or Madhua Pahari.	Tekaetni of Doranda .	Doranda . . .	BENGAL PROVINCE— <i>contd.</i> CHOTA NAGPUR DIVISION— <i>contd.</i> <i>Hazaribagh District—concl'd.</i> Doranda, police station Giridih . . . Dhanwar.		60 miles from Giridih by the old Cart Road, but 90 <i>via</i> the Grand Trunk Road, and about 20 miles from Burhee.	By push-push .	Mica.	Mines numbered 197 to 203 were not returned in the "List of mines being worked" nor in the "List of mines abandoned or discontinued for 1897."
201	Simeria . . .	} Babu Jowahir Mall .	Koderma . . .	} Koderma police station, Sub-division Hazaribagh.	Ditto . . .	About 50 miles .	Ditto .	Do.	Mines numbered 194 to 196 were said to be abandoned during the second half of 1897.
202	Kajirodih . . .								
203	Masnudih . . .	Messrs. F. F. Chrestien & Co.	Tisri <i>via</i> Bhurai . . .						
204	Doondbar . . .	Toofani Singh . . .	Koderma . . .						
205	Pemia . . .	Narni Dass . . .	Ditto . . .						
206	Domechanch . . .	Messrs. F. F. Chrestien & Co. . . .	Fisri <i>via</i> Bhurai . . .						
207	Burra Sujma (Sagunia).	} E. Cox, Esq.	Ditto . . .	In Koderma police station	Ditto . . .	Ditto . . .	Ditto .	Do.	
208	Chotta Sujma (Ditto)								
209	Dagia . . .								

LIST OF MINES IN INDIA—*contd.*

No.	Name of mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mine—State, Province, Division, Sub-division or District.	Nearest or most convenient railway or other station.	Distance from station.	Means available for getting to mine from station.	Mineral wrought.	REMARKS, (Nearest Thana, etc.)
1	2	3	4	5	6	7	8	9	
PRIVATE MINES BEING WORKED.									
282 283	Asokoorha Gonaipur	} Mr. Looti . . . Ditto Kali Prosono Babu . . .	Karakdiha	Sub-division Giridih	Giridih	Over 20 miles	By palikibearers or push-push.	Mica	Thana Kharakdiha.
284 285	Charkapathal Tolo Tand (Telotand.)		Ditto	Ditto	Ditto	About 20 "	Ditto	Do.	Ditto.
286 287	Salbahar Bachakandhey		Ditto	Ditto	Ditto	" 20 "	Ditto	Do.	Ditto Mines Nos. 268 and 269 were not included in the returns for 1897, nor in the List of mines abandoned or discontinued during 1897."
288 289 290 291	Modhaniania Khirkuria Delbia (Dilbia) Nazdi		Tisri, Bhurai Office. Post	Ditto	Ditto	" 20 "	Ditto	Do.	Thana Kharakdiha.
292 293 294 295 296	Kalwa Pahari Madhanian Dabar Suva Dhab Barwadit (Barwadit)	Bhagwatt Babu . . . Panchkori Babu . . . Mr. Saise Choora Mahton . . . Tincouri Babu . . .	} Messrs. F. Chrestien & Co. Gawan }	Ditto	Ditto	Over 140	Ditto	Do.	Thana Gawan.

	Katkako	Messrs. F. F. Christien & Co.	Tisri Office.	Bhurai	Post	Ditto	Barakar Station	2 miles	Ditto	Ditto	Do.	
297	Katkako											
298	Rajpoora											
299	Chirki											
300	Ghograh											
301	Dhapahat											
<i>Mandhum District.</i>												
1	Mugma mine	Rama Nath Bhuttacharjee, (Jadu Gopal)	Syampur police-station Nirsha.	(Shampur), police-station Nirsha.		Mugma, Govindpur Sub-division.	Barakar	4	Ditto	Palki	Coal.	Not at work owing to dull market.
2	Rajpura mine	Shosi Bhusan Gossami	Rajpura, Nirsha.	Chirkunda, police-station Nirsha.		Rajpura, Govindpur Sub-division.	Barakar	4	Ditto	Ditto	Do.	
3	Ditto	Sambhu Nath Roy	Kapasara	Chirkunda, police-station Nirsha.		Ditto	Ditto	4	Ditto	Ditto	Do.	Do.
4	Ditto	Rohini Kumar Rai	Barakar			Ditto	Ditto	4	Ditto	Ditto	Do.	Mines Nos. 2, 4 and 5 were not included in the returns for 1897, nor included in the "List of mines abandoned or discontinued during 1897."
5	Ditto	Dariyao Khan, Kaboli (dead).	Rajpura, Nirsha.	police-station Nirsha.		Ditto	Ditto	4	Ditto	Ditto	Do.	
6	Ditto	Sristidhar Mukerji Becharam Mukerji	Ditto			Ditto	Ditto	4	Ditto	Ditto	Do.	Not at work owing to dull market.
7	Chattataur Chhattabad mine	Sital Chandra Set	Chattataur (Chhattabad), police-station Nirsha.			Ditto	Ditto and Jharua police-station.	3 and 7 miles	Ditto	Ditto	Do.	Do.
8	Pandedi mine	Pandedi Coal Company	Pandedi, Nirsha.	police-station Nirsha.		Pandedi, Govindpur Sub-division.	Kalubatham	2 miles	Ditto	Ditto	Do.	Do.
9	Hatibari mine	Hatibari Coal Company	Hatibari, Nirsha.	police-station Nirsha.		Hatibari, Govindpur Sub-division.	Nirsha police-station	1 mile from Nirsha P. S. and 3 from Kalubatham.	Ditto	Ditto	Do.	
10	Agaya-Birsingpur	East Indian Coal Company	Charuinala, post office and police-station Nirsha			Agya Birsingpur, Govindpur Sub-division.	Ditto	2 miles	Ditto	Ditto	Do.	Do.
11	Pitakeyari (Pithak-car) mine	Prasanna Kumar Rai (Jadab Chakravarti)	Ditto			Pitakeyari (Nirsha), Govindpur Sub-division.	Ditto	1 mile.	Ditto	Ditto	Do.	Do.

LIST OF MINES IN INDIA—contd.

No.	Name of mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mine—State, Province, Division, Sub-division or District.	Nearest or most convenient railway or other station.	Distance from station.	Means available for getting to mine from station.	Mineral wrought.	REMARKS. (Nearest Thana, etc.)
1		2	3	4	5	6	7	8	9
BENGAL PROVINCE—contd.									
CHOTA NAGPUR DIVISION—contd.									
Manbhoom District—contd.									
12	Ketardihi (Ketardi) mine	Ishan Chunder Ghose .	Kaldi, (Ketardi) Barakar, police-station Nirsha.	Ketardihi, Govindpur Sub-division.	Nirsha police-station .	4 miles .	Palki and cart .	Coal .	Not at work owing to dull market.
13	Sangamahul mine	Say Nath Banerji (Rama Nanda Roy) .	Sangamahul, police-station Nirsha.	Sangamahul, Govindpur Sub-division.	Ditto .	4 " .	Ditto .	Do. .	Do.
14	Kanadi Bhalber mine	Ram Lal De	Calcutta, Chunagali house, No. 8.	Kanadi, Bhalber . .	Ditto .	8 " .	Ditto .	Do. .	Mines Nos. 14 and 21 were not included in the return "List of mines worked in 1897," nor in the return "List of mine abandoned or discontinued during 1897."
15	Patlabari	South Barakar Coal Company	Calcutta and Patlabari, Barakar.	Patlabari, Govindpur Sub-division.	Barakar .	4 " .	Ditto .	Do. .	Do.
16	Tantikanali mine	Bengal Coal Company .	Tantikanali	Govindpur Sub-division	Ditto .	2 " .	Ditto .	Do. .	Do.
17	Dhankura mine	Ditto	Ditto, Tantikanali, Barakar.	Dhankura, Govindpur Sub-division.	Ditto .	2 " .	Ditto .	Do. .	Do.
18	Kumardubi mine	Barakar Coal Company .	Tantikanali (Kumardubi), Barakar.	Kumardubi	Ditto .	2 " .	Ditto .	Do. .	Do.
19	Egarkur mine	Haradhon Layek . .	Egarkur, police-station Assansol, Kalipahari.	Egarkur, Govindpur Sub-division.	Ditto .	3 " .	Ditto .	Do. .	Do.

20	Ditto	Umesh Bhattacharji & Co.	Chandra Mankar, Egarkur, police-station Bud-bud, district Burdwan.	Ditto	Ditto	3 "	Ditto	Do.	
21	Ditto	Umesh Chandra Roy	Chirkunda, police station Bud-bud, district Burdwan.	Ditto	Ditto	3 "	Ditto	Do.	
22	Ditto	Surendra Nath Layek & Son	Begunia, district Burdwan	Ditto	Ditto	3 "	Ditto	Do.	Not at work owing to dull market.
23	Ditto	Krishna Madak (Jagat Kissoore Madak)	Chirkunda	Ditto	Ditto	3 "	Ditto	Do.	Do.
24	Ditto	Jadu Gopal Chatterjee	Kalipahari, Egarkur, police-station Nirsha.	Ditto	Ditto	3 "	Ditto	Do.	Not working owing to dull market.
25	Coal mine	Mr. J. Deveria	Purulia	Monkurah, Raghunathpur.	Damodar station	3 "	Ditto	Do	Mines Nos. 25, 32, 34, 35, 37, 40, 43, 45, 46, 47 and 51 were not included in the return "List of mines being worked in 1897," nor included in the return "List of mines abandoned or discontinued during 1897."
26	Sijna mine	Finlay Muir & Co.	Sijna, Ragan	Village Sijna, Govindpur Sub-division.	Katras Jharra Extension, E. I. R.	1 1/2 "	Ditto	Do.	

LIST OF MINES IN INDIA—contd.

No.	Name of mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mine—State, Province, Division, Sub-division or District.	Nearest or most convenient railway or other station.	Distance from station.	Means available for getting to mine from station.	Mineral wrought.	REMARKS. (Nearest Thana etc.)
	1	2	3	4	5	6	7	8	9
27	Angarpatra mine	Radhanath Trigunait and (Khabaneswar Trigunait.)	Malkara, police station Topechanchi.	Village Angarpatra	Katras station Jharia Extension, E. I. R.	½ mile	Palki and Cart.	Coal	Do.
28	Ditto	Trigunait Bros.	Ditto	Ditto	Ditto	½ "	Ditto	Do.	Do.
29	Ditto	Nagendra Chundra Mitra.	Malikara, police-station Topechanchi, Mahata, Burdwan.	Village Angarpatra, Gobindpur Sub-division	Ditto	½ "	Ditto	Do.	Not at work owing to dull market.
30	Ditto	Ditto.	Ditto	Ditto.	Ditto	½ "	Ditto	Do.	Do.
31	Ditto	Jogendra Srimany.	Malikara, police-station Topechanchi, Calcutta, 40-2, Baranasi Ghose's Street.	Ditto	Ditto	½ "	Ditto	Do.	
32	Kendadi mine.	East Indian Coal Company.	Kendadi, police-station Jharia.	Kendadi	Dhanbad station	1 "	Ditto	Do.	
33	Khoyra mine	Ditto.	Kendadi, police-station Jharia, Assansol, Burdwan.	Khoyra	Ditto	1 "	Ditto	Do.	
34	Borari mine	Ditto (Ram Lal Neogi).	Ditto	Borari, Govindpur Sub-division.	Ditto, Jharia P. S.	2 miles	Ditto	Do.	Do.

35	Bhakatī . . .	Bengal Nagpur Coal Company.	Bhakatī, Jharia.	police-station	Bhakatī, Govindpur Sub-division.	Ditto . . .	1 mile	Ditto . . .	Do.
36	Parur Kanaltī mine	Bhaja Danji Kachhi .	Fatehpur, Jharia.	police-station	Parur Kanaltī, Govindpur Sub-division.	Jharia Police Station	4 miles	Ditto . . .	Do.
37	Bhaga mine . . .	Ditto . . .	Ditto	.	Fatehpur, Govindpur Sub-division.	Ditto . . .	2 "	Ditto . . .	Do.
38	Sudamdi mine	Deosi Hirji Kachhi .	Sudamdi, Jharia.	police-station	Sudamdi, Govindpur Sub-division.	Ditto . . .	6 "	Ditto . . .	Do. . . Not at work owing to dull market.
39	Sutikdi mine	Bengal Nagpur Coal Company.	Joyalgora, Jharia.	police-station	Sutikdi, Govindpur Sub-division.	Ditto . . .	6 "	Ditto . . .	Do.
40	Angarpattra . . .	Mohabir Prosad (Prosanna Kunmar Roy)	Katras, Angarpattra	.	Gobindpur Sub-division	Katras station, Jharia Extension.	$\frac{1}{2}$ mile	Palki . . .	Do. . . Not at work owing to dull market.
41	Ditto . . .	Bistoo Narain Chand and Girish Narain Chand.	Ditto	.	Ditto . . .	Ditto . . .	$\frac{1}{2}$ "	Ditto . . .	Do. . .
42	Boragar . . .	Gopal Chandra Bhatta-charjee.	Boragar, Jharia	.	Ditto . . .	Jharia police-station	2 miles	Ditto . . .	Do.
43	Bhastakola (Bastukali).	Beerbhoom Coal Company (Mr. Philippe)	Bhastakola (Bastukala) Jharia.	.	Ditto . . .	Danbad station	2 "	Ditto . . .	Do.
44	Bansrya (Bansuria) .	Mr. J. M. Derby, G. M. Barnett.	Bansrya (Bansuria)	.	Ditto . . .	Ditto and Jharia police-station.	2 "	Ditto . . .	Do.
45	Bhandudi . . .	Katras Jharia Coal Company, Ltd.	Manager, F. S. Cook, Esq., Panchgori.	.	Ditto . . .	Katras station	$\frac{1}{2}$ mile	Ditto . . .	Do.
46	Brindabanpur . . .	Baktas Marwari (Chhokan Lal Kachhi.)	Brindabanpur	.	Ditto . . .	Nirsha police-station and P. O.	3 miles	Ditto . . .	Do.
47	Chattabad . . .	Katras Jharia Coal Company, Ltd.	Manager, F. S. Cook, Esq., Panchgoria.	.	Ditto . . .	Katras station	$\frac{1}{2}$ mile	Ditto . . .	Do.
48	Chaitudi . . .	Ditto . . .	Ditto	.	Ditto . . .	Ditto . . .	$\frac{1}{2}$ mile	Ditto . . .	Do.
49	Chitahi . . .	Chitahi Coal Company	Chitahi	.	Ditto . . .	Ditto . . .	1 "	Ditto . . .	Do.
50	Dobari . . .	Sosi Bhusan Banerjee (Dobari Coal Co.)	Dobari, Jharia	.	Ditto . . .	Jharia police-station	1 "	Ditto . . .	Do.

LIST OF MINES IN INDIA—*contd.*

No.	Name of mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mine—State, Province, Division, Sub-division or District.	Nearest or most convenient Railway or other Station.	Distance from station.	Means available for getting to mine from station.	Mineral wrought.	REMARKS. (Nearest Thana, etc.)
	1	2	3	4	5	6	7	8	9
51	Egarkur	Nanda Lall Gorraia	Chirkunda	BENGAL PROVINCE— <i>contd.</i> CHOTA NAGPUR DIVISION— <i>contd.</i> <i>Manbhum District—contd.</i> Gobindpur Sub-division	Barakar and Dhanbad station.	3 & 4 miles	Palki and Cart.	Coal	Not at work owing to dull market.
52	Fatehpur	Bhaju Kachi (Bhola Danji Bros.)	Fatehpur, Jhar	Ditto	Dhanbad, E. I. R., Jharua police-station	1 mile	Ditto	Do.	
53	Ghunyadi	Mr. A. M. Tuddeas	Ghunyadi	Ditto	Ditto	1 "	Ditto	Do.	
52	Gopinathpur	Abhoya Charan Chatterjee.	Gopinathpur	Govindpur Sub-division	Nirsha police-station and Barakar Railway Station.	4 miles	Palki or hackney carriage.	Do.	Not at work owing to dull market.
53	Ditto	Sidheswar Chatterjee (Banerjee)	Ditto	Ditto	Ditto	4 "	Ditto	Do.	
54	Ditto	Bhagaban Mohanta (Bhagaban Chandra Samanta.)	Ditto	Ditto	Ditto	4 "	Ditto	Do.	Not at work owing to dull market.
55	Ditto	Gopal Chunder Mitra (Khetra Mohan Mukerjee.)	Ditto	Ditto	Ditto	4 "	Ditto	Do.	Mines Nos. 57, 58, 64, 65, and 66, 68, 69, 70, 72, to 76, were not included in the returns of mines being worked in 1897, nor

LIST OF MINES IN INDIA—*contd.*

No.	Name of mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mine—State, Province, Division, Sub-division or District.	Nearest or most convenient Railway or other Station.	Distance from station.	Means available for getting to mine from station.	Mineral wrought.	REMARKS. (Nearest Thana, etc.)
	1	2	3	4	5	6	7	8	9
				BENGAL PROVINCE— <i>contd.</i> CHOTA NAGPUR DIVISION— <i>contd.</i> <i>Manbhum District—concl'd.</i>					
71	Neslipattra (Niluapathra)	Ashutosh Pramanick (Sridhar Mukerji.)	Neslipattra (Nilusapathra) Jheria.	Gopinathpur	Jheria police-station.	1 mile	Paiki or hackney carriage,	Coal	Not at work owing to dull market.
72	Patra Kuil	Haradhan Gorrian	Govindpur town	Ditto	Dhanbad station	2 miles	Ditto	Do.	
73	Rajpura	Ayeb Musib	Rajpura, Nirsha	Ditto	Barakar Station	5 "	Ditto	Do.	
74	Subenga	Srimaito Dhan	Goberdanga, 24 Parganas	Ditto	Dhanbad station	4 "	Ditto	Do.	
75	Salanpur	Katras Jheria Coal Company.	Manager, F. S. Cook, Esq., Panchgori.	Ditto	Katras station	$\frac{1}{2}$ mile	Ditto	Do.	
76	Sahandi	Dr. D. Bose	Sahandi	Ditto	Ditto	1 $\frac{1}{4}$ miles	Ditto	Do.	
77	Sanjilataur	Mr. C. Smith	Bhakatdi, Jheria	Ditto	Ditto	1 mile	Ditto	Do.	Mines Nos. 77, 78, 79, 81, 83, 91, 92, 99, and 100, were not included in the return "List of mines being worked in 1897," nor included in the return "List of mines abandoned or discontinued during 1897."

78	Ditto	Behary Trigunai	Malikora, Katras	Ditto	Ditto	1	Ditto	Do.
79	Sijna	Messrs. Finlay, Muir & Co.	Sijna, Raniganj	Ditto	Dhanbad station	5 miles	Ditto	Do.
80	Tentulia	Tentulia Coal Company (Katras Jharia Coal Co.)	Tentulia	Ditto	Katras station	1 mile	Ditto	Do. Not working owing to dull market.
81	Topataur	E. I. Coal Company	Topataur	Ditto	Nirsha police-station	3 miles	Ditto	Do.
82	Bhaba	Ram Nath Das	Nirsha	Ditto	Ditto	1 mile	Ditto	Do.
83	Egarkur	Kanji Munji Kachi	Egarkur	Ditto	Barakar station	3 miles	Ditto	Do.
84	Kenduardi	E. I. Coal Company	Assansol, Burdwan	Ditto	Dhanbad station	1 mile	Ditto	Do.
85	Bharmuri	Ananto Chakravarti	Nirsha, Pergana Pandra	Ditto	Barakar station	1	Ditto	Do. Ghooting
86	Chirkunda	Lambodar Laik	Laikdi	Ditto	Ditto	1	Ditto	Do.
87	Ichagor	Ramdas Babu	Ichagor	Saddar Sub-division	Chandil	14 miles	Bullock cart	Stone.
88	Chandil	Nilmoni Khan	Chandil	Ditto	Ditto	8	Ditto	Do.
89	Ditto	Biswanath and Kedar Nath Pal.	Ditto	Ditto	Ditto	8	Ditto	Do.
90	Kamartaur mine	Nando Gorain	Chirkunda, police-station Nirsha.	Kamartaur, Govindpur Sub-division.	Jharia police-station	6 and 5 miles	Palki or cart	Coal.
91	Gopali chak mine	Madhatya Kachhi	Gopali chak, police-station Jharia.	Gopali chak, Govindpur Sub-division.	Barakar station	1 mile	Ditto	Do.
92	Ladhna mine	Ladhna Coal Company (Jharia Ladhna Coal Co.)	Begunia, near Barakar (Ladhna).	Ladhna, Govindpur Sub-division.	Jharia police-station	1	Ditto	Do. Jharia Ladhna Coal Co. transferred their right to Ladhna Coal Co.
93	Madhuban mine	Ditto	Ditto (Madhuban)	Madhuban, Govindpur Sub-division.	Ditto (Dhanbad railway station).	2 miles and 5 miles	Ditto	Do.
94	Golakdi mine	Cohen and Company, (Great Eastern Coal Co., Ltd.)	Golakdi, police-station Jharia.	Golakdi, Govindpur Sub-division.	Ditto	2 and 4 miles	Bullock cart and palki, and hackney carriage.	Do.

LIST OF MINES IN INDIA—contd.

No.	Name of mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mine—State, Province, Division, Sub-division or District.	Nearest or most convenient Railway or other Station.	Distance from station.	Means available for getting to mine from station.	Mineral wrought.	REMARKS, (Nearest Thana, etc.)
	1	2	3	4	5	6	7	8	9
95	Kusunda .	Bengal-Nagpur Coal Company.	Bhakatdi, police-station Jharia.	Kusunda, Govindpur Sub-division.	Jharia police-station (Dhanbad railway station).	2 Miles .	Bullock cart, palki and hackney carriage.	Coal.	
96	Shampur (Shyampur) mine.	Bengal Stone Company (Shyampur Coal Co.)	No 100, Clive Street, Calcutta, and Shampur, Nirsha.	Shampur (Shyampur), Govindpur Sub-division	Nirsha police-station	2 " .	Palki and Bullock cart.	Do.	
97	Ditto .	Lakhan Chandra Mitra and Daraka Nath Khatri.	Shampur (Shyampur), police-station Nirsha.	Ditto . .	Ditto . .	2 " .	Ditto . .	Do. .	Not working owing to dull market.
98	Nirsha mine .	Ditto . .	Ditto . . .	Ditto . .	Police-station Nirsha	1 mile .	Ditto . .	Do.	
99	Egarkur mine .	Akuil Chander Pal .	Ramnagar, Assansol, district Burdwan.	Egarkur . . .	Barakar . .	3 miles .	Ditto . .	Do.	
100	Ditto .	Amaljuna Kachi (Amon Joseph Kachi).	Egarkur, police-station Nirsha.	Ditto . . .	Ditto . .	3 " .	Ditto . .	Do.	
101	Ditto .	Chhagan Lal Nagar Kachhi.	Ditto . . .	Ditto . . .	Ditto . .	3 " .	Ditto . .	Do. .	Not working owing to dull market.
102	Kalimati mine. .	Banowari Lal Ray & Co.	Ludhna, Barakar . .	Kalimati, Govindpur Sub-division.	Ditto . .	3 " .	Ditto and palki	Do. .	Do.
103	Gold mine .	Messrs. Barry & Co. .	Bandih . . .	Bandih, Chandil thana, Sadar Sub-division.	Chandil, B.-N. R. .	14 miles .	Bullock cart and palki.	Gold .	Mines No. 104, 105, 106, 108, and 112 were not included in the return "List of mines"

being worked
in 1897," nor
included, in
the return
"List of mines
abandoned or
discontinued
during 1897."

104	Limestone mine	Karali P. Mukherjee	Kutchbell	Packet Hill, Raghunathpur.	Ramkanali	5 "	Ditto	Limestone
105	Stone mine (lime)	Mr. Deveria	Purulia	Hansapathur, Raghunathpur.	Ditto	8 "	Ditto	Lime.
106	Bharmuri mine	Burn & Co.	Raniganj, district Burdwan.	Bharmuri, Govindpur Sub-division.	Barakar	1 mile	Ditto	Stone and kharimati.
107	Jarpahari mine	Bengal Stone Company	No. 100, Clive Street, Calcutta, Nirsha.	Bandar Chuva, Govindpur Sub-division.	Nirsha police station	2 miles	Ditto	Coal.
108	Dulmi stone mine	Madhab Poddar	Dulmi, Barakar	Dulmi, Chandil thana, Sadder Sub-division.	Nimdi, B.-N. R.	6 "	Bullock cart	Stone, plates and slabs.
109	Bondihi stone mine	Udhab Mandal	Bondihi	Bondihi, Chandil thana, Sadder Sub-division.	Chandil, B.-N. R.	8 "	Ditto	Ditto.
110	Ditto	Kishore Dutta	Ditto	Ditto	Ditto	10 "	Ditto	Ditto.
111	Shampur mine	Bengal Stone Company	No. 100, Clive Street, Calcutta, Nirsha.	Shampur, Govindpur Sub-division.	Nirsha police-station	2 "	Ditto	Coal.
112	Kapasara mine	Kanal Lal Dey	Calcutta and Chirkunda	Kapasara, outpost Chirkunda, Govindpur Sub-division.	Barakar	1 mile	Ditto and paliki	Ghooting.
113	Ditto	Ramesh Roy	Chirkunda	Ditto	Ditto	1 "	Ditto	Ghooting mine
114	Ditto	Bhadrnath Rai	Ditto	Ditto	Ditto	1 "	Ditto	Do.
115	Ditto	Braja Rai	Kapasara	Ditto	Ditto	1 "	Ditto	Do.

LIST OF MINES IN INDIA—*contd.*

No.	Name of mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mine—State, Province, Division, Sub-division or District.	Nearest or most convenient Railway or other Station.	Distance from station.	Means available for getting to mine from station.	Mineral wrought.	REMARKS. (Nearest Thana, etc).
1		2	3	4	5	6	7	8	9
BENGAL PROVINCE— <i>concl'd.</i>									
BHAGALPUR DIVISION.									
<i>Sonthal Parganas District.</i>									
1	Domanpur coal mine	Keshub Chandra Dev }	Rassickpur, post office Dumka, District Sonthal Parganas.	Sub-division Doomka	Rampurhat	28 or 29 miles	Hackney, palanquin, or cart.	Coal.	
2	Ghatchora coal mine								
3	Sultanpur	Benwari Lal Kahiraj and Ram Lal Kahiraj.	Sultangur, Taluk Kendua Kansta, Pargana Kundohit, Sub-division Jamtara.	Sub-division Jamtara	Churulia	3 miles	Bullock cart	Do.	
<i>Monghyr District.</i>									
1	Pananwan	New Indian Mica Company.	6, Clive Row, Calcutta	Sub-division Jamui	Nawadih	4½ miles	Bullock hackney	Mica.	
2	Charka Pathal in Mahesri.	F. F. Chrestien & Co.,	Tisri Bhurai post office, Giridih.	Prospecting in Mahesri, Sub-division Jamui.	Ditto	12 miles	Horse or dooly	Do.	
3	Beyhayet	C. W. F. Ruckland, Esq., and Mr. E. M. Floyd.	Nawadih post office	Sub-division Jamui	Ditto	12 "	Palki or riding	Do.	
4	Dahian	Babu Lal Singh of Khandeyech.	Khandayech, Sub-division Jamui.	Ditto	Ditto	10 "	Dooly or horse.	Do.	
5	Kharuckpur slate and stone quarries.	Amblor & Co., lessees, from Raj Darbhanga.	Amblor & Co., lessee, slate works, Bussownee via Dharhara.	Pargana Kharuckpur	Dharhara station, East Indian railway, loop line.	8 miles from railway station,	Dooly or country cart.	Slates for roofing and flooring, and mill stones.	

6	Karee Khan Havalie, Khuruckpur, near Rishikund.	Ditto	Ditto	Ditto	Monghyr	9 miles	Ditto	Slates only.
PATNA DIVISION. <i>Gaya District.</i>								
1	Sapahi mica mine	Babu Dirgopal Lal	Manager, Sapahi mica mine, <i>via</i> Rajowli post office, Gaya.	Sub-division Nawada	Rajowli police-station	14 miles	Palki or riding.	Mica.
2	Singar mica mine	Owner, Babu Jaimangal Prasad Narain Sing, of Singar; Lessee, Messrs. Chrestien & Co.	Messrs. Chrestien & Co., Singar, Rajowli post office, Gaya.	Ditto	Ditto	6 "	Palki or riding.	Do.
3	Chatkari	Owner, Government; Lessee, Babu Radha Binod Majumdar.	Manager, Chatkari mines, <i>via</i> Rajowli post office, Gaya.	Ditto	Ditto	11 "	Ditto	Do.
CENTRAL PROVINCES. NAGPUR DIVISION. <i>Chanda District.</i>								
1	Warora Colliery	Government of India	Manager, Warora Colliery, Warora, C. P.	Warora Sub-division	Warora station, Wardha Coal State Railway.	2 miles	Road, or railway, by trolley.	Coal and fire clay.
NERBUDDA DIVISION. <i>Narsingpur District.</i>								
1	Mohpani Colliery	Nerbudda Coal and Iron Company, Limited.	Agent and Manager, Mohpani, <i>via</i> Gadawara Station, Great Indian Peninsula Railway.	Gadawara Sub-division.	Gadawara station, Great Indian Peninsula Railway.	12 miles	Railway, probably by trolley or coal train.	Coal.

LIST OF MINES IN INDIA—*contd.*

No.	Name of mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mine—State, Province, Division, Sub-division or District.	Nearest or most convenient Railway or other Station.	Distance from station.	Means available for getting to mine from station.	Mineral wrought.	REMARKS. (Nearest Thana, etc.)
1		2	3	4	5	6	7	8	9
CENTRAL PROVINCES— <i>contd.</i>									
REWAH STATE.									
1	Umaria Colliery	Land owned by Rewah State. Machinery, etc., owned and mines worked by Government.	Manager, Central Provinces Collieries, Umaria.	In Rewah State . . .	Umaria station, Bengal-Nagpur Railway.	Nearly 2 miles to pit head.	Railway trolley.	Coal.	
PUNJAB PROVINCE.									
RAWALPINDI DIVISION.									
<i>Jhelum District.</i>									
1	Dandot coal mine	Government	Manager, Dandot Colliery, <i>via</i> Khewra, Sind-Saugor branch of the North-Western Railway, Punjab.	Near Dandot village, Tahsil Pind Dadan Khan.	Khewra station.	4 miles	By means of coal train tramway.	Coal.	
2	Pidh Colliery	Ditto	Ditto	Near village Pidh, Tahsil Pind Dadan Khan.	Ditto	6 "	By road or tramway from Dandot mine.	Do.	
3	Baghanwalla Colliery.	Ditto	Ditto	Near village Baghanwalla, Tahsil Pind Dadan Khan.	Ilaranpur station.	12 "	itto	Do	
4	Khewra salt mine	Ditto	Superintendent, Khewra Salt Mine, Khewra, Sind-Saugor branch of the North-Western Railway, Punjab.	Near Khewra village, Tahsil Pind Dadan Khan.	Khewra station.	1 mile	By road	Salt.	

LIST OF MINES IN INDIA—*contd.*

No.	Name of mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mine—State, Province, Division, Sub-division or District.	Nearest or most convenient Railway or other Station.	Distance from station.	Means available for getting to mine from station.	Mineral wrought.	REMARKS. (Nearest Thana, etc.)
	1	2	3	4	5	6	7	8	9
PUNJAB PROVINCE— <i>contd.</i>									
DERAJAT DIVISION— <i>concl'd.</i>									
<i>Bannu District—concl'd.</i>									
4	Kohat quarries	Government	Superintendent, Kohat Salt Mine, Kohat, <i>vid</i> Khushalgarh, on the Rawal Pindi and Khushalgarh branch of the North-Western Railway.	Kohat, Peshawar District, Punjab.		29 miles	By tonga.	Salt	Only the quarries are being worked since the mines were closed.
5	Mandi	Raja of Mandi	Superintendent, Mandi Salt Mine, Drang, <i>vid</i> , Pathankot, on the Amritsar and Pathankot branch of the North-Western Railway.	Guma and Drang, Mandi District, Punjab.	Pathankot	119 "	Tonga, ekka and pony, <i>vid</i> Kangra, Palampur, Guma, etc.	Do	Mines and quarries.
6	Kalabagh Alum shale mine.	Malik of Kalabagh	Malik of Kalabagh, Kalabagh, <i>vid</i> Mari on the Mari Branch of the Sind-Saur Extension of the North-Western Railway.	Kalabagh, near to Mari on the river Indus, Shahpur District, Punjab.	Mari	3 "	Boat and riding or walking.	Alum shale	These are small alum shale mines. Alum is made from the shale in Kalabagh town.
BALUCHISTAN.									
1	Sor Range Coal mine.	Messrs. Sorabji and Co., Quetta.	Messrs. Sorabji and Co., General Merchants, etc., Quetta, Baluchistan.	In the Sor Range of hills, near Quetta, Baluchistan.		About 30 miles	By camel	Coal	
2	Ditto	Sirdar Bawal Khan, Dust.	Sirdar Bawal Khan, Dust, near Bolan Quetta, Baluchistan.	Ditto	Ditto	" 30 "	Ditto	Do.	

3	Ditto . . .	Khan Bahadur B. D. Patel, Quetta, Baluchistan.	Ditto . . .	Ditto . . .	20 to 24 "	Ditto . . .	Do.
4	Ditto . . .	Pestonji Hormusji Guddially, Quetta, Baluchistan.	Ditto . . .	Ditto . . .	About 20 "	Ditto . . .	Do.
5	Ditto . . .	Peroz Shaw Ruttonji, Sogoo, Quetta.	Ditto . . .	Ditto . . .	" 20 "	Ditto . . .	Do.
6	Shahrig . . .	Mine Manager, Shahrig, Baluchistan.	Shahrig, Thal Chotiali District, Baluchistan.	Shahrig . . .	3 to 4 miles .	Walking riding.	Do. or
7	Khost . . .	Ditto . . .	Ditto . . .	Khost . . .	1 to 2 "	Ditto . . .	Do.
JULLUNDER DIVISION. <i>Kangra District.</i>							
8	Kohr iron mine . . .	Government . . .	Kohr <i>via</i> Baijnath . . .	Kohr Kohr . . .	Pathankote, North-Western Railway.	121 miles .	Mules, ponies and Iron bullocks.
BOMBAY PRESIDENCY. (A)—BRITISH DISTRICTS. <i>Shikarpur.</i>							
9	Sukkar Quarries, Nos. 1 to 24 . . .	Nos. 12, 13 and 17 to 22 belong to Sukkar Municipality. Nos. 1 to 10 and 23 to N.-W. Railway, and the rest to Military Works Department.	See information in column 2.	Taluka Sukkar . . .	Nos. 1 to 22 and 24 Sukkar main, No. 23 Sukkar bundar.	Within a mile .	Carts . . . Limestone

The lease is sold by public auction annually, and fetches about Rs50.

LIST OF MINES IN INDIA—*contd.*

No.	Name of mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mine.—State, Province, Division, Sub-division or District.	Nearest or most convenient Railway or other Station.	Distance from station.	Means available for getting to mine from station.	Mineral wrought.	REMARKS. (Nearest Thana, etc.)	
		2	3	4	5	6	7	8	9	
				BOMBAY PRESIDENCY.— <i>contd.</i>						
				(A)—BRITISH DISTRICT— <i>concl'd.</i>						
				<i>Shikarpur</i> — <i>concl'd.</i>						
2	Rohri and Arore Quarries.	Rohri Municipality and Government.	See information in column 2.	Taluka Rohri . . .	Rohri . . .	Rohri 1 mile, Arore 5 miles.	Camel, carts and horses, etc.	Limestones, sandstones and other kinds of sand.	These mines were not included in any of the returns for 1897.	
1	Quarry . . .	Government . . .	.....	Jamkhed, Karjat, Srigonda, Nagar and Patnet.	.....	.....	Bullock cart	Limestone and stone metal.		
				<i>Ahmednagar.</i>						
				<i>Poona.</i>						
1	Sansar . . .	Forest Department . . .	Forest Department . . .	Indapur Taluka . . .	Diksal . . .	.....	Bullock cart	Stone metal.		
2	Ghode . . .	Ditto . . .	Ditto . . .	Ambeagaon Petha . . .	.....	.....	Ditto	Do.		
3	Wadad Khurd . . .	Ditto . . .	Ditto . . .	Taluka Sirur . . .	Talegaon . . .	5 miles	Ditto	Do.		
4	Khadki . . .	} P. W. Department . . .	P. W. Department . . .	Taluka Bhimthadi . . .	{ Bori . . .	8 "	Ditto	Do.		
5	Padir . . .		P. W. Department . . .	{ Kedgaon . . .	8 "	Ditto	Do.			
6	Walki . . .	Nanaji constructor . . .	.....	Petha Dhond . . .	Dhond . . .	3 "	Ditto	Do.		
7	Dhond . . .	Nathuram . . .	.....	Ditto . . .	Ditto . . .	3 "	Ditto	Do.		

8	Delavdi . . .	Kesukushaba . . .	.....	Ditto . . .	Ditto . . .	3 "	Ditto . . .	Do.
9	Phursangi . . .	Amrita and others . . .	.....	Taluka Haveli . . .	Phursangi . . .	1½ "	Ditto . . .	Do.
				<i>Hyderabad.</i>				
1	Fuller's Earth mine . . .	Government . . .	Government . . .	T. Hyderabad, Hala Sub-division.	Hyderabad . . .	6 miles	By road . . .	Fuller's earth.
				<i>Panch Mahals.</i>				
2	Quarry . . .	Ditto . . .	.....	Bajarwada in Petha.	Jhalod	23 miles	Bullock cart . . .	Dark-bluish coloured soft stone slates.
				Limkheda on Godhra-Rutlam line.				
				<i>Dharwar District.</i>				
3	Gold mine . . .	Alnawar Gold Mining Company.	Alnawar, Dharwar District.	Dharwar District . . .	Alnawar railway station.	½ mile	Good road . . .	Auriferous stones.
				<i>(B).—NATIVE STATES.</i>				
				<i>Cutch.</i>				
4	Bhuj Quarries, 11 in number.	Cutch State . . .	Cutch State . . .	Bhuj . . .	.....	.....	Carts or donkeys . . .	Black stones, red stones, limestone, sandstones and hard flat laminated stones.
				These mines were not included in the returns for 1897.				

It is used for building purposes, Annually leased. This mine was not included in the returns for 1897.

LIST OF MINES IN INDIA—*contd.*

No.	Name of mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mine—State, Province, Division, Sub-division or District.	Nearest or most convenient Railway or other Station.	Distance from station.	Means available for getting to mine from station.	Mineral wrought.	REMARKS. (Nearest Thana, etc.)
	1	2	3	4	5	6	7	8	9
				BOMBAY PRESIDENCY— <i>contd.</i> (B)—NATIVE STATES— <i>contd.</i> <i>Cutch.</i> — <i>concl'd.</i>					
2	Mandvi Quarries, 6 in number.	Cutch State	Cutch State	Nabhai, Mandvi, Goniarsar and Bhadai.	.....	.....	Carts or donkeys	White stone.	These mines were not included in the returns for 1897.
3	Andhakni Quarry	Ditto	Ditto	Khávda	.....	.....	Carts	Do.	
4	Baryani	Ditto	Ditto	Mundra	.....	.....	Ditto	Do.	
5	Bhadresarni	Ditto	Ditto	Ditto	.....	.....	Ditto	Do.	
6	Navinal	Ditto	Ditto	Ditto	.....	.....	Ditto	Do.	
7	Mathak	Ditto	Ditto	Anjore	.....	.....	Ditto	Do.	
8	Parjan	Ditto	Ditto	Abdusa	.....	.....	Ditto	Reddish stones.	
9	Jukhan	Ditto	Ditto	Jukhan	.....	.....	Ditto	White stone.	
				<i>Kathiawar.</i>					
1	Three Dhars, Lakhtar Quarries, 5 in number.	Lakhtar State	Lakhtar State	Thán Sim in Lákh-tar State.	Thán railway station, Muli Railway.	1 mile	Bullock cart	Building stones and crude coals.	
2	Wadwhan Quarries, 9 in number.	Wadwhan State	Wadwhan	Wadwhan	Wadwhan and Wadwhan junction.	5 miles	Ditto	White and red stones.	
3	Saila Quarry.	Saila State	Saila	Saila	Thán and Dholia.	4 and 8 miles, respectively.	Ditto	Sand stones and clay.	

4	Mulí . . .	Mulí State . . .	Mulí State . . .	Mulí . . .	Mulí Station . . .	3 miles . . .	Ditto . . .	Red sand- stone.	These mines were not included in the re- turns for 1897.
5	Datha . . .	Shareholders of Datha and Jali and Bam- bhor.	Datha State . . .	Datha . . .	Bhawnagar . . .	50 " . . .	Ditto . . .	White and gray stones.	
6	Chámardi . . .	Chámardi Talukdars . . .	Chámardi Talukdars . . .	Chámardi . . .	Sihor and Songad . . .	10 " . . .	Ditto . . .	Do.	
7	Dhángadhra, Quarries, 43	Dhángadhra State . . .	Dhángadhra . . .	Jhalévád Sub-division . . .	Wadwhan, Khara, Godha, Lakhtar and Morvi.	Within 50, 23, 20 and 28 miles.	Ditto . . .	Grinding and building stones.	
<i>Palanpur State.</i>									
1	Palanpur State Quarries, 5 in num- ber.	Palanpur State . . .	The Dewansahib of Pa- lanpur.	Palanpur State . . .	Sarotri on R. M. Railway.	Within 18 miles	Carts . . .	Granite stones	This mine was not in- cluded in the returns for 1897.
2	Wáo State, 2 Quar- ries.	Sami (Saint) and Rana of Wáo.	Dodgaum Head Sami and Rana of Wáo.	Dadgaum under Wáo . . .	Deesa railway sta- tion.	" 38 " . . .	Camel, and country carts.	Clay and chunam.	
3	Santhalpore, 4 Quar- ries.	Jodeji Sámer Kanji, Thakore Rawji, and others.	Santhalpore . . .	Santhalpore . . .	Patdi and Pattun . . .	" 60 " . . .	Bullock carts . . .	White and red clay, and building stones.	This mine was not in- cluded in the returns for 1897.
<i>Mahikantha.</i>									
1	Idar, 7 Quarries . . .	The Máharaja of Idar . . .	The Máharaja of Idar . . .	Ahmednagar and Vadali . . .	Vadnagar . . .	Within 48 miles . . .	Country carts . . .	Sand limestones.	These mines were not included in the re- turns for 1897.
2	Salvekanthá . . .	Thakore of Khedawáda . . .	Thakore of Khedawáda . . .	Khedawáda . . .	Ditto . . .	24 miles . . .	Carts, and camels.	Sandstones . . .	
3	Ilol . . .	The Thakore of Ilol . . .	The Thakore of Ilol . . .	Ilol . . .	Ditto . . .	20 " . . .	Carts . . .	Do.	

LIST OF MINES IN INDIA—contd.

No.	Name of mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mine—State, Province, Division, Sub-division or District.	Nearest or most convenient Railway or other Station.	Distance from station.	Means available for getting to mine from station.	Mineral wrought.	REMARKS. (Nearest Thana, etc.)
	1	2	3	4	5	6	7	8	9
1	Rajpipla Quarries, 4 in number.	Rajpipla State and Durbat.	Rajpipla State	BOMBAY PRESIDENCY—concl'd. (B)—NATIVE STATES—concl'd. <i>Rewakanthia.</i> <i>Gujrat States.</i> Ratanpur, Taluk Jaghadia in Rajpipla State.	Ankleshwar on B., B. and C. I. Railway.	15 miles	Bullock carts	Akik (car-nelian) stones.	The car-nelian stones in the rough state are removed to Limodra village; they are for some time left in the heat of the sun, and are afterwards burnt in kiln. Then they are selected by Cambay merchants, and taken to Bombay, where they are manu-factured into but-tons, toys, etc., known as "Cam-bay agate".

2	Wadasinor . . .	Nabob of Wadasinor . .	Nabob of Wadasinor . .	Dongrali in Wadasinor . .	Sewalia . .	. .	. .	10 "	Ditto	. .	Building stones.	These two mines were not included in the returns for 1897.
3	Sunth . . .	Sunth Darbar . .	Sunth . . .	Valai river in Sunth . .	Sunth road . .	. .	. .	37 "	Ditto	. .	Building stones, ordinary.	
MADRAS PRESIDENCY. Godavari District.												
1	Rajahgompalli coal mines.	The Godavari Coal Company, Limited.	Rajahgompalli <i>via</i> Wudagudiem, Godavari District.	Bhadrachalam Taluk . .	Rajahmundry, East Coast Railway.	. .	. .	80 miles	Boat up the river Godavari.	. .	Coal . .	The Company is only working under prospecting licenses, a mining lease not having yet been granted.
2	Graphite mine . .	... ..	Perakonda	Ditto. . . .	.....	. .	. .	.....	.....	. .	Graphite . .	Returns for this mine were not received.
Nellore District.												
1	Pokkandala . .	Messrs. Kodah Badu-sha and Hadi Badu-sha Company, Madras.	Golam Dastagir Sahib, Manager of the Company, residing in Korchi Konda in Gokula Brindavanam Shrotri-em, <i>via</i> Sythapuram Post.	Pokkandala Shrotri-em . .	Gudur railway station, South Indian Railway.	. .	. .	10 miles	Road up to Sythapuram for seven miles and thence cart-track for three miles.	. .	Mica . .	Not shown in the returns for 1897.
2	Chaganam . .	Ditto	Ditto	Chaganam No. 1 unoccupied waste.	Ditto . .	. .	. .	10 "	Road up to Chaganam for 12 miles and thence by cart-track for two miles.	. .	Do. . .	Only prospecting. Not shown in the returns for 1897.

LIST OF MINES IN INDIA—contd.

No.	Name of mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mine—State, Province, Division, Sub-division or District.	Nearest or most convenient Railway or other Station.	Distance from station.	Means available for getting to mine from station.	Mineral wrought.	REMARKS, (Nearest Thana, etc.)
	1	2	3	4	5	6	7	8	9
MADRAS PRESIDENCY—contd. Nellore District.									
3	Turupu Bundla	Messrs Kodah Badusha and Hadi Badusha Company, Madras.	Golam Dastagir Sahib, Manager of the Company, residing in Korachi Konda in Gokula Brindavanam Shrotriem, <i>via</i> Sythapuram Post.	Turupu Bundla Forest Reserve No. 1.	Gudur railway station, South Indian Railway.	6 miles	Road up to Tippavarapad for five miles and thence by cart-track for two miles.	Mica	Only prospecting. Not shown in returns for 1897.
4	Utukur	K. Munisami Iyer of Madras.	K. Munisami Iyer, owner of mica mine in Utukur, <i>via</i> Sythapuram Post.	Utukur Survey No. 137.	Ditto	13 "	Road up to Sythapuram for seven miles and bandy-track for six miles.	Do.	Not shown in returns for 1897.
5	Three Mica Mines	Palukur Venkatrame Reddy.	Nellore Taluk	Thatiparti, Atmakur Taluk, Nellore District.	Nellore railway station.	20 "	Road and cart-track to the mine.	Do.	
6	Mica Mine	K. Munuswamy Iyer	Madras	Mangalapur, Gudur Taluk.	Gudur railway station.	6 "	Douka	Do.	
7	Ditto	Ditto	Ditto	Chenmore, Gudur Taluk.	Ditto	4 "	Road	Do.	
8	Ditto	B. Venkatasubba Reddy.	Varagali, Gudur Taluk	Ditto	Ditto	4 "	Ditto	Do.	
9	Podlakur Mine.	K. Venkiah (A. Subba Naidu, contractor).	Nellore	Podlakur, Rapur Taluk Podlakur S. No. 538 in Khudam No. 10 Reserve Forest.	Nellore railway station.	21 "	Road up to Inukurti and cart track to the mine. Bandies drawn by bullocks.	Do.	

10	Biradavole (Reserve.)	Mine	Messrs. Best & Co.	Madras	Biradavole (S. No. ⁴⁶⁰ ₂ Reserve.)	Ditto	15	Road to Biradavole and cart-track to the mine. Country bandies.	Do.
11	Orupally Shrotriem Mine.	Shrotriem	Epur Narayana Reddy (N. Subba Naidu.)	Epur, Gudur Taluk	Orupally Shrotriem, Rapur Taluk.	Manubole Station.	15	Road to Orupally and cart-track to the mine. Country bandies.	Do.
12	Chetagothla mine	Chetagothla	Peram Venkata Reddy	Boddurariapallem, Nellore Taluk.	Chetagothla, Shrotriem, Rapur Taluk.	Nellore Railway Station.	15	Road to Chetagothla and cart-track to the mine. Country bandies.	Do.
13	Mudigeru mine	Mudigeru	K. Subbarami Reddy.	Kondapudy, Nellore Taluk.	Mudigeru	Ditto	21	Road to Inukurti and cart-track to the mine.	Do.
14	Toderu mine	Toderu	P. Adini Reddy and Rama Ragana Reddy.	Toderu	Toderu	Ditto	13	Road to Toderu and cart-track to the mine.	Do.
15	Rachukkala mine	Rachukkala	Ibrahim Saheb & Co..	Gudur	Chaganam	Gudur Railway Station.	11	Road to Chaganam and cart-track to the mine.	Do.
16	Pallamitta mine	Pallamitta	Messrs. Haji Md. Badsha Saheb & Co.	Madras	Malakalapondla, Tar-mulatalapur.	Ditto	7½ to 12 miles	Road to Sydapuram and cart-track to the mine.	Do.
17	Sha mine	Sha	Ditto	Ditto	Sydapuram	Ditto	9	Ditto	Do.
18	Tella Bodu mine	Tella Bodu	Ansoor Subba Naidu	Indukarpet, Nellore Taluk.	Ditto	Ditto	9	Ditto	Do.
19	Rachukkala mine.	Bodi mine.	B. Venkata Subba Reddy.	Varagali, Gudur Taluk	Chaganam	Ditto	10	Road to Chaganam and cart-track to the mine.	Do.

Mines Numbered 13 to 15, 17, 18, 20 and 21 were not shown in the returns for 1897.

LIST OF MINES IN INDIA—*contd.*

No.	Name of mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mine—State, Province, Division, Sub-Division or district.	Nearest or most convenient Railway or other Station.	Distance from station.	Means available for getting to mine from station.	Mineral wrought.	REMARKS. (Nearest Thana, etc.)
	1	2	3	4	5	6	7	8	9
20	Poturaju Mine	B. Venkatta Reddy.	Varagala, Gudur Taluk.	Turimerla	Gudur Railway station.	15 miles	Road to Sydapuram and cart-track to the mine.	Mica.	
21	Vandur Mine.	Ditto	Ditto	Vatukur	Ditto	12 "	Ditto	Do.	
22	C. Mine.	Ansoor Subba Nayudu	Indukurpet	Perumallapod	Ditto	12 "	Ditto	Do.	
23	Nandala Mine.	Ditto	Ditto	Toorpuoondla	Ditto	6 "	Ditto	Do.	Mines numbered 22 to 31 and 33 were not shown in the returns for 1897.
24	Dundigam Mine	Lakka Konda Reddy	Tadeparte, Atmakur Taluk.	Dundigam, Kavali Taluk	Nellore Railway Station.	25 "	Road	Do.	
25	Ditto	L. Annappa Nayudu	Tarunavoya, Taluk.	Ditto	Ditto	25 "	Ditto	Do.	
26	Ditto	Sheik Khaja Sahib	Talupurpodu, Atmakur Taluk.	Ditto	Ditto	25 "	Ditto	Do.	
27	Ditto	S. Venkatappa	Srikolam, Atusakar Taluk.	Ditto	Ditto	25 "	Ditto	Do.	
28	Ditto	Kotukonda Chinamala Kondadu.	Dundigam	Ditto	Ditto	25 "	Ditto	Do.	
29	Gudladona Mine	M. S. Abdul Waheb Saheb & Co.	Madras	Gudladona	Ditto	30 "	Ditto	Do.	

30	Laxmipuram Jumany Chimm- gani Yessa Chin- nagani.	B. Ranga Reddy	Kavur, Nellore Taluk	Laxmipuram	Nellore Station	Railway	32	"	"	Ditto	Do.	
31	Chinakraka Mine	Udayagiri Company	Udayagiri	Chinakraka	Ditto		35	"	"	Ditto	Do.	
	Ilapodu Mine	Anchoor Subba Nayudu.	Indukurpet, Taluk.	Tellapodu, Sydapuram	Gudur		9	"	"	Ditto	Do.	
	Katur Mine	1. G. Venkata Subba Reddy. 2. K. Yendi Reddy	Ditto	Kakatur Shrotriem	Ditto		48	"	"	Ditto	Do.	
34	Phosphatic Nodule Mine, Perambalur Taluk, Trichino- poly District.	Messrs. Arbuthnot & Co., Madras, Lessees.	Messrs. Arbuthnot & Co., Madras, and Les- sees of Phosphatic Nodule Mines, Uttathur villages, Perambalur Taluk.	Perambalur Taluk, Tri- chinopoly District.	Trichinopoly on the South Indian Rail- way.		23	"	"	Road for 21 miles up to Pudalur and thence cart- track for 2 miles up to Uttathur.	Phosphatic nodules.	The grant of a min- ing lease for 3 years has been sanctioned in G. O. 379, dated July, 1896.
	The Mysore Reefs Gold mines.	The Mysore Reefs Gold Mining Com- pany, Limited.	John Garland, Esq., Sec- retary, Mysore Reefs Gold Mining Company, No. 6, Queen's Street Place, London.	Arthinathan, Kangundi- Zemindari, Vellore Sub- division.	Disanotham Station, Bangalore Branch, Madras Railway, south-west line.		About 1 1/4 miles			Bisanathum is only a trial sta- tion. There are no villages within a ra- dius of one mile. Bandies or any other kind of convey- ances are not available at the station. If previous ar- rangements are made for coun- try carts, they may be had at times.	Gold quartz	The best way is to go via the Kolar Gold Mines.—J. G.

North Arcot District.

LIST OF MINES IN INDIA—*contd.*

No.	Name of mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mine—State, Province, Division, Sub-division or District.	Nearest or most convenient Railway or other Station.	Distance from station.	Means available for getting to mine from station.	Mineral wrought.	REMARKS (Nearest Thana, etc.)
1		2	3	4	5	6	7	8	9
MADRAS PRESIDENCY—<i>contd.</i>									
<i>Anantapur District.</i>									
1	Diamond Mine	Mr. Wilkins, Agent, Diamond Company, Wazrakarur.	Diamond Company, at Wazrakarur.	Wazrakarur, Taluk.	Gooty Six miles from Gulapaliem railway station, Southern Mahratta Railway, or 10 miles from Guntakal junction.	Six miles from Gulapaliem or ten miles south of Guntakal.	Common country carts on hire.	Diamond.	Not shown in the returns for 1897.
<i>Visagapatam District.</i>									
1	Koder, Manganese Mines.	The Maharajah of Vizianagram and others.	Henry J. Emison, Manager, Kodur Mines.	Kodur near Cheepurupalli.	Garividi station, Fast Coast Railway.	About one mile	Carts and tramway.	Manganese.	
HYDERABAD (DECCAN.)									
1	Sigareni Colliery	The Hyderabad (Deccan) Co., Ltd.	Thomas Wilkinson, Esq., Agent and General Manager at the mine. Manager in India, T. H. Lowinsky, Esq., Secunderabad; London Office, No. 19, St. Helen's Place, London.	Yellandu, 157 miles from Secunderbad.	Yellandu, the terminus of a 16-mile branch railway from Dornakal Junction.	1 to 2 miles.	Walking and on trolley.	Coal.	
MYSORE STATE.									
<i>Mysore District.</i>									
1	Woolagiri Gold Mine.	Woolagiri Mysore Gold Mining Company, Limited.	Valgere, Taluk.	Nanjangud Taluk	.....	.....	.....	Gold.	

Kolar District.										
	Mysore Reefs Gold Mine.	Mysore Reefs Gold Mining Company, Limited.	Valley Property, Oorgaum.	Marikuppam, Bowringpet Taluk, close to Mysore State boundary.	Bisanattam, Madras Railway, Mysore terminus of Kolar Gold Field branch.	1½ miles	On horse or walking.	Gold.		
2										
3	South-East Mysore Gold Mine.	South-East Mysore Gold Mining Company, Limited.	Yerrakonda block, Oorgaum.	Marikuppam, Bowringpet Taluk, close to Yerrakonda hill.	Ditto	3½ "	Ditto	Do.		
4	Yerrakonda Gold Mine.	Yerrakonda Gold Mining Company, Limited.	Ditto	Ditto	Ditto of the Mysore Mines Station.	3½ "	Ditto	Do.		
5	Mysore Gold Mine	Mysore Gold Mining Company, Limited.	Oorgaum, Bowringpet Taluk, also 6, Queen Street Place, London, E.C.	Marikuppam, Bowringpet Taluk, Kolar Fields.	Mysore Mines Station.	The station is the terminus station of the Kolar Gold Field Railway and is on the mine.	Walking	Do.		
6	Champion Reef Mine.	Champion Reef Gold Mining Company of India, Limited.	Ditto	Oorgaum, Bowringpet Taluk, Kolar Fields.	Champion Reefs	Close to mine on the Kolar Gold Field Railway.	Ditto	Do.		
7	Oorgaum Gold Mine.	Oorgaum Gold Mining Company of India, Limited.	Ditto	Ditto	Oorgaum	Ditto	Ditto	Do.		
8	Nundydroog Mine	Nundydroog Company, Limited.	Ditto	Ditto	Ditto	Ditto	Ditto	Do.		
9	Tank Mine	Mysore West and Mysore Wynaad Consolidated Gold Mining Companies, Limited.	Oorgaum, Bowringpet Taluk, Kolar Fields.	Oorgaum, Bowringpet Taluk between Nundydroog and Coromandel Blocks.	Oorgaum and Balaghat stations of the Kolar Gold Field Railway.	½ mile	Ditto	Do.		
10	Coromandel Mine	Coromandel Gold Mining Company of India, Limited.	Ditto Also 6, Queen Street Place, London, E. C.	Kolar Gold Fields, Bowringpet Taluk.	Balaghat on the Kolar Gold Field Railway.	½ "	Ditto	Do.		
11	Balaghat Mysore Mine.	Balaghat Mysore Mines, Limited.	Ditto	Balaghat, Kolar Gold Fields, Bowringpet Taluk.	Ditto	½ "	Ditto	Do.		

LIST OF MINES IN INDIA—*contd.*

No.	Name of mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of Mine—State, Province, Division, Sub-division or District.	Nearest or most convenient Railway or other Station.	Distance from station.	Means available for getting to mine from station.	Mineral wrought.	REMARKS. (Nearest Thana, etc.)
	1	2	3	4	5	6	7	8	9
12	The Gold Fields of Mysore.	The Gold Fields of Mysore Mining Company, Limited.	Oorgaum, Bowringpet Taluk, Kolar Gold Fields, also 6, Queen Street Place, London, E.C.	MYSORE STATE— <i>contd.</i> <i>Kolar District—concltd.</i> Oorgaum, Bowringpet Taluk on the Kolar Gold Fields.	Balaghat on the Kolar Gold Field Railway.	Only a short distance from the mine.	Walking .	Gold.	
13	Nine Reefs Mine	Nine Reefs Gold Mining Company, Limited.	Ditto .	Ditto .	Ditto .	1 mile .	Ditto .	Do.	
14	Honnali Tribute Syndicate.	Honnali Tribute Syndicate.	Managing Agents, Messrs. Wilson & Co., Madras, Kudurakonda, near Nyamti.	Honnali Taluk .	Birur Station is 56 miles by road from mine, along the road by pony transit and bullock-cart; Harihar Station is 33 miles by road, bullock-cart.			Gold.	
15	No. 15 Honnali	Honnali Prospecting and Gold Mining Company, Limited.	Kudurakonda, near Kalva Ranganhalli near Nyamti.	Ditto .	Ditto			Do.	
16	Mysore Nagar Gold Mines.	Mysore Nagar Gold Mining Company.	Honnegudda, near Honnechatti near Benkipur.	Shimoga Taluk .	.....	.....		Do.	

Shimoga District.

17	The Kempinkote Gold Field.	The Kempinkote Gold Field, Co., Limited.	Kempinkote . . .	Hassan District.			Channarayapatna Taluk	Tiptur Station is 26 miles across country, no proper roads. Arsikere Station is 43 miles by road, bullock-carts. French Rocks 50 miles; and 10 miles from Channarayapatna, where there is a travellers' bungalow. Arsikere Station is generally the most convenient.	Gold.	.
18	Mysore Harnhalli Gold Mine.	Mysore Harnhalli Gold Mining Company.	Harnhalli . . .	Arsikere Taluk . . .	Arsikere . . .	3 miles on the road towards Kempinkote, and 1½ miles across the fields.	Bullock-cart and walking.	Do.	This mine has only been prospected a little.	
ASSAM.										
Naga Hills District.										
1	Dikhu Valley .	Assam Tea Company.	Nazira, Assam . . .	Sub-division Mokok-chang.	Dekhu and Sessang Mukhs.	30 miles .	Road and river to within 5 miles of mine.	Coal.		
Lakhimpur District.										
1	Tikak . . .	Assam Railways and Trading Company, Limited.	{ Tikak . . . Ledo . . . }	Tikak and Ledo Hills near Margherita, Sadr Sub-division.	Dihing Bridge railway station at Margherita, Colliery line runs to mines.	Tikak, 6 miles Ledo, 8 miles .	By rail . .	Coal.		
2	Ledo . . .									
The "Tirap," "Namdang," and the "Lakadang" coal mines in the hills bearing the same names are not now working, "but the Owners are engaged in laying out works for the purpose." The first two are situated "not very far from the Tikak and Ledo mines."										
Khasi and Jaintia Hills District.										
1	Shella . . .	The People of Shella .	Shella . . .	Shella, Khasi Hills .	Chhattak, Sylhet .	About a day's journey.	By boats during rains, by road in winter.	Limestone.		

LIST OF MINES IN INDIA.—*contd.*

No.	Name of mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of Mine—State, Province, Division, Sub-division or District.	Nearest or most convenient Railway or other Station.	Distance from station.	Means available for getting to mine from station.	Mineral wrought.	REMARKS. (Nearest Thana, etc.)
			3	4	5	6	7	8	9
2	Dholai Cherra		Sylhet	State Bhowal, Khasi and Jaintia Hills.	Sunamganj, Sylhet .	About a day's journey.	By boats during rains, by road in winter.	Limestone.	
3	Patharia	Habib Ulla			Ditto	Ditto	Ditto	Do.	
4	Bhowal Cherra		Chhattak, Sylhet	State Langrin, Khasi and Jaintia Hills.	Ditto	Ditto	Ditto	Do.	
5	Langrin	Messrs. Inglis & Co.		State Nongstion, Khasi and Jaintia Hills.	Ditto	Ditto	Ditto	Do.	
6	Nongstion	Ditto	Ditto	Burponji, Khasi and Jaintia Hills.	Thariaghat	About 3 miles	Ditto	Do.	
7	Borpunji	Babu Jeebon Roy	Cherrapunji						
8	Sohbar	Messrs. Don, Roy & Co.	Ditto	Sohbarpunji, Khasi and Jaintia Hills.	Ditto	1 mile	By road	Do.	
9	Cherra mine	" Inglis & Co.	Chhattak, Sylhet	In the range of hills 2 miles to the south of the village of Cherrapunji and between it and Maosmai.	Near village Cherrapunji.	2 miles	Ditto	Coal.	
		Owned by Government and worked by the Khasias.	At the mine						

UPPER BURMA.					
NORTHERN DIVISION.					
<i>Shwabo District.</i>					
Letkokbin Colliery	Burma Coal Company, Limited.	Kabwet, Shwabo District	Tantabin Sub-division	Kabwet is the nearest riverine station, and Kinu the nearest railway station.	From Kabwet, 4 miles, and from Kinu 8 miles.
<i>Ruby Mines District.</i>					
Pingntaung Mines	} Burma Ruby Mines Company, Limited.	Agent to the Burma Ruby Mines Company, Kyatpin.	Mogok Sub-division	Thabeikky, a riverine station accessible by steamer.	52 miles
Purma Workings					
Tagaungnandaing					
Mogok Shwéboutha Mines,					
<i>Katha District.</i>					
Chankpazat	C. M. P. Wright.	Chankpazat gold mine, Thadaggin <i>vid</i> Namkhan.	Kawlin Sub-division, Mawnaing township, Mawnaing circle.	Namkhan railway station.	11 miles
<i>SOUTHERN DIVISION.</i>					
<i>Thayetmyo District.</i>					
Tondaung colliery	Messrs. W. C. Hulbert and W. R. Lewis.	Tondaung Colliery, Thayetmyo District.	Thayetmyo Sub-division, Thayetmyo township, Minde circle.	No railway station, other station Thayetmyo on river Irrawaddy.	3½ miles

LIST OF MINES IN INDIA—*contd.*

No.	Name of mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mine—State, Province, Division, Sub-division or District.	Nearest or most convenient Railway or other Station.	Distance from station.	Means available for getting to mine from station.	Mineral wrought.	REMARKS, (Nearest Thana, etc.)
	1	2	3	4	5	6	7	8	9
				UPPER BURMA— <i>contd.</i>					
				TENASSERIM DIVISION.					
				<i>Tavoy District.</i>					
1	Mount Burney	Mr J. D. Watson	Mr. J. D. Watson, Mount Burney.	Mount Burney, central township, Ganktaing circle.	No railway, Tavoy.	3 miles from Tavoy	By carriage	Gold.	Started during 1st half of year 1897.
1	Tin mine	Mg Shwe Tun	Zargit quarter, Tavoy Town.	Northern township Kala-chauing Shwe Aing Gya-wsokpyat and Ongbin-qun Zadi circle.	Ditto	59 miles from Tavoy town.	Partly by cart and foot.	Tin.	
2	Ditto	Mg Shwe Gyan	Ngatwe village, Tavoy District.	Central township, Kunchon and Laukchan, Kwinmyitta Circle.	Ditto	18 miles from Tavoy town.	Ditto	Do.	
3	Ditto	Mg Kyaw Dun	Sinzeik village, Tavoy District.	Northern township Oubinkwin Kwin, Zadi Circle.	Ditto	59 miles from Tavoy town.	Ditto	Do.	
				MOULMEIN DIVISION.					
				<i>Mergui District.</i>					
1	Ayer Ganas	Telebu Mining and Trading Company, Limited, Maliween.	Maliween	Maliween Sub-division, Maliween township, Maliween Circle.	No railway	1½ miles	By road on foot	Tin.	
2	Ditto				Maliween town	5			
3	Nan Swai				Victoria Point.	7	By boat and road	Do.	
4	Klong Grow				No railway	From 3 to 5 miles.	By road on foot.	Do.	
5	Lo Nuru (Kobong).	Ditto	Ditto	Ditto	Maliween town				
6	Lo Nuru (Klongti-kong Yeon).								

7.—SUPPLEMENTARY LIST OF MINES IN INDIA FOR THE YEAR 1897.

The following Mica mines were apparently first given in the returns for the first half of the year 1897 without anything to show how long they had been working, or whether they were new mines started or old mines re-started.

No.	Name of mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mine—State, Province, Division, Sub-division or District.	Nearest or most convenient Railway or other Station.	Distance from station.	Means available for getting to mine from station.	Mineral wrought	REMARKS, (Nearest Thana, etc.)
	1	2	3	4	5	6	7	8	9

SUPPLEMENTARY LIST OF MINES IN INDIA—contd.

The following Mica mines were apparently first given in the returns for the first half of the year 1897 without anything to show how long they had been working, or whether they were new mines started or old mines re-started

No.	Name of mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mine—State, Province, Division, Sub-division or District.	Nearest or most convenient Railway or other Station.	Distance from station.	Means available for getting to mine from station.	Mineral wrought.	REMARKS, (Nearest Thana, etc.)
		2	3	4	5	6	7	8	9
14	Bodhua .								
15	Murghattia .								
16	Kacharia .								
17	Salya .	Bishu Ram .	Koderma .	Kachari .	Girdih .	60 miles .	By push-push or palki bearers.	Mica.	
18	Bogoloa .								
19	Sugi .								
20	Dodoa .								
21	Ghutarna .								
22	Kanjun .								
23	Salia .								
24	Ushuadah .								
25	Paprua .	Messrs. F. F. Chrestien & Co.	Tisri, <i>vide</i> Bhurai P. S.	Moglamaran .	Ditto .	Ditto .	Ditto .	Do.	
26	Gamarla .								
27	Bhama .								
28	Baria .								
29	Passara .								

SUPPLEMENTARY LIST OF MINES IN INDIA—contd.

The following mines are said to be in the Encumbered Estates, and were not shown in the returns for the half-year ending 31st December 1896.

Mines in Encumbered Estates (Private Mines).

		Tincouri Chowdhari	Giridih	Giridih Sub-division	Giridih station	About 38 miles	By cart or palanquin.	Mica	Thana Dhanwar.
1	Machua Pahari								
2	Gidha Pahar	Kedar Nath Rai	Ditto	Ditto	Ditto	" 37 "	Ditto	Do.	
3	Kharouni Pahar	Ashu Tosh Mittra	Ditto	Ditto	Ditto	" 37 "	Ditto	Do.	
4	Charkapathar	Ditto	Ditto	Ditto	Ditto	" 38 "	Ditto	Do.	
5	Bhulwa Pahari	Lalgi Mistri	Ditto	Ditto	Ditto	" 36 "	Ditto	Do.	
6	Choramaron	Bahadur Mull Sett	Ditto	Ditto	Ditto	" 36 "	Ditto	Do.	
7	Moondafar	Ditto	Ditto	Ditto	Ditto	" 38 "	Ditto	Do.	
8	Bhartooki								
9	Sagwa								
10	Soorangi	Jowahir Mull	Ditto	Ditto	Ditto	" 36 "	Ditto	Do.	Thana Gawan.
11	Digha								
12	Garhi								
13	Kusbur	Manoranjan Guha	Ditto	Ditto	Ditto	" 24 "	Ditto	Do.	Thana Dhanwar.
14	Pipratand								
15	Kusbur	Tarapado Mittra	Ditto	Ditto	Ditto	" 26 "	Ditto	Do.	Do.
16	Salbahar								
17	Bochakandhey	Kali Prosunno Babu	Khurukdiha	Ditto	Giridih	" 20 "	By push-push	Do.	

SUPPLEMENTARY LIST OF MINES IN INDIA—contd.

The following Mica Mines were apparently first given in the returns for the second-half of the year 1897 without anything to show how long they had been working, or whether they were new Mines started, or old ones re-started.

No.	Name of Mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of Mine—State, Province, Division, Sub-division or District.	Nearest or most convenient Railway or other Station.	Distance from station.	Means available for getting to Mine from station.	Mineral wrought.	REMARKS. (Nearest Thana, etc.)
	1	2	3	4	5	6	7	8	9
1	Aurrakhad .								
2	Henaure .								
3	Hanuman .								
4	Dhalagir .								
5	Galkand .								
6	Manda .								
7	Rapa .	E. Lane, Esq.	Koderma . . .	Sadar Sub-division, District Hazaribagh.	Giridih station. railway	60 miles . . .	By push-push or palki bearers.	Mica . . .	Koderma.
8	Atkatar .								
9	Kallapani .								
10	Boghua .								
11	Jataha .								
12	Chirki .								
13	Mowria .								
14	Tootlai .								

CHOTA NAGPUR DIVISION—contd.
HAZARIBAGH DISTRICT—contd.

SUPPLEMENTARY LIST OF MINES IN INDIA—contd.

The following Mines were given in the returns for the first and second halves of the year 1897, but without anything to show how long they had been working, or whether they were new Mines started, or old Mines re-started.

No.	Name of Mine.	Name of Owner or Company.	Situation of Mine—State, Province, Division, Sub-division or District.	Nearest or most convenient Railway or other Station.	Distance from station.	Means available for getting to Mine from station.	Mineral wrought.	REMARKS. (Nearest Thana, etc.)
	1	2	4	5	6	7	8	9
CHOTA NAGPUR DIVISION—contd.								
MANBHOM DISTRICT—contd.								
10	Bansjora	Bansjora Coal Co., Ltd.	Govindpur Sub-division.	Chirkunda P. O.	2 miles	Palki	Coal	Not at work owing to dull market.
11	Chanch	Bengal Coal Co., Ltd.	Ditto	Barakar Station	4 "	Do.	Do.	
12	Chasnala	Jogendra Neth Basu	Ditto	Jharla P. S.	2 "	Do.	Do.	
13	Dhonkera	Bengal Coal Co., Ltd.	Ditto	Barakar Station	2 "	Do.	Do.	
14	Dobari	Rajendra Narayan Bagchi.	Ditto	Jharla	1 mile	Do.	Do.	
15	Dharmaband	Khatras Jharla Coal Co.	Ditto	Katras Station	1 "	Do.	Do.	
16	Egarkur	Ray Das Coal Co.	Ditto	Barakar Station	3 miles	Do.	Do.	
17	Do.	Kedar Nath and Bihuti Chatterji.	Ditto	Ditto	4 "	Hackney carriage	Do.	
18	Do.	Kunja Behari Mukherji	Ditto	Ditto	3 "	Palki	Do.	
19	Do.	Ayeb Joseph Kachi	Ditto	Ditto	3 "	Do.	Do.	
20	Do.	Deosi Hirji Kachi	Ditto	Ditto	3 "	Do.	Do.	
21	Do.	Hirji Sekhar Kachi	Ditto	Ditto	3 "	Do.	Do.	
22	Do.	Rohini Kumar Roy	Ditto	Ditto	3 "	Do.	Do.	
23	Gorphalbari	Agya Coal Co.	Ditto	Ditto	3 "	Cart	Do.	

24	Do.	New Barakar Coal Co.	Ditto	.	.	Ditto	.	.	.	3 "	.	Do.	Do.	...
25	Gopalchuk	Madhabji Jiban	Gopalchak	.	.	Ditto	.	.	.	4 "	.	Do.	Do.	Do.
26	Do.	Kanji Mowji	Ditto	.	.	Ditto	.	.	.	4 "	.	Do.	Do.	...
27	Ghunadi	Mrs. Savinton	Ghunadi	.	.	Ditto	.	.	.	4 "	.	Cart	Coal	Not at work owing to dull market.
28	Gansadi	K. B. Lake, Esq.	Gansadi	.	.	Ditto	.	.	.	4 "	.	Do.	Do.	.
29	Gajlatar	Behari Nath Trigunait	Gajlatar	.	.	Ditto	.	.	.	1 mile	.	Do.	Do.	.
30	Gobindpur	Dhanbad, Jharia Coal Co.	Dhanbad	.	.	Ditto	.	.	.	4 miles	.	Do.	Do.	Do.
31	Goreora	Beni Prasad Agarthula	Goreora	.	.	Ditto	.	.	.	3 "	.	Do.	Do.	.
32	Jamdaba	Raniganj Coal Association	Raniganj	.	.	Ditto	.	.	.	2 "	.	Palki	Do.	.
33	Kalimati	Sanabai Munshi	Barakar, Kalimati	.	.	Ditto	.	.	.	3 "	.	Do.	Do.	.
34	Do.	Makhan Lal Laha & Co.	Do.	.	.	Ditto	.	.	.	3 "	.	Do.	Do.	Do.
35	Do.	Raj Kishore Nag & Co.	Do.	.	.	Ditto	.	.	.	3 "	.	Do.	Do.	Do.
36	Do.	Piari Lal Lahiri	Do.	.	.	Ditto	.	.	.	3 "	.	Do.	Do.	Do.
37	Do.	Gobardhan Dutt	Do.	.	.	Ditto	.	.	.	3 "	.	Do.	Do.	Do.
38	Do.	Lalit Mohun Bose	Do.	.	.	Ditto	.	.	.	1 mile	.	Do.	Do.	Do.
39	Khaira or Khoira	East Indian Coal Co.	Kendur di	.	.	Ditto	.	.	.	3 miles	.	Do.	Do.	Do.
40	Korkend	Ras Behary Sirkar	Korkend, Jharia	.	.	Ditto	.	.	.	3 "	.	Do.	Do.	Do.
41	Do.	Bistoo Narain Chand	Angarpathra	.	.	Ditto	.	.	.	3 "	.	Do.	Do.	Do.
42	Kusuanda	D. R. Boga	Kusunda	.	.	Ditto	.	.	.	3 "	.	Cart, palki or horse,	Do.	Do.
43	Do.	Mr. Philippe	Do.	.	.	Ditto	.	.	.	3 "	.	Do.	Do.	Do.

SUPPLEMENTARY LIST OF MINES IN INDIA—*contd.*

No.	Name of Mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of Mine—State, Province, Division, Sub-division or District.	Nearest or most convenient Railway or other Station.	Distance from station.	Means available for getting to Mine from station.	Mineral wrought.	REMARKS. (Nearest Thana, etc.)
	1	2	3	4	5	6	7	8	9
				CHOTA NAGPUR DIVISION— <i>concl'd.</i>					
				MANBHOOM DISTRICT— <i>concl'd.</i>					
44	Kusumda .	Mr. Chater Smith .	Kusumda . . .	Govindpur Sub-division	Jharia, Dhanbad .	3 miles .	Cart, paliki or horse.	Coal .	Not at work owing to dull market.
45	Do. . .	Godadhar Roy and Ashu Tosh Roy.	Do.	Ditto . . .	Ditto . . .	3 " . . .	Do. . . .	Do. . . .	Do.
46	Katras . . .	Katras Jharia Coal Co.	Katras, Augarpathra .	Ditto . . .	Katras police station	3 " . . .	Paliki . . .	Do. . . .	Do.
47	Kopal Coal Kankani	Indra Nath Banerjee .	Kankani.	Ditto . . .	Topichanchi . .	2½ " . . .	Do. . . .	Do. . . .	Do.
48	Do. . . .	Babu Gobindo Chunder Basu.	Ditto	Ditto . . .	Ditto . . .	2½ " . . .	Do. . . .	Do. . . .	Do.
49	Karpargora .	Mr. W. H. Augier, Manager of Nitchipur mine.	Karpargora . . .	Ditto . . .	.....	.....	Do. . . .	Do. . . .	Do.
50	Kujama . .	Sarmanta Banerjee & Co.	Kujama	Ditto . . .	Dhanbad . . .	5 " . . .	Do. . . .	Do. . . .	Do.
51	Do. . . .	Gopal Krishna Roy .	Murshidabad . .	Ditto . . .	Ditto . . .	5 " . . .	Do. . . .	Do. . . .	Do.
52	Layabad . .	Barakar Coal Co. .	Layabad	Ditto . . .	Ditto . . .	5 " . . .	Do. . . .	Do. . . .	Do.
53	Layadi . . .	Baikunta Nath Chowdhary.	Layadi	Ditto . . .	Ditto . . .	2 " . . .	Do. . . .	Do. . . .	Do.
54	Laikdi . . .	Bengal Coal Co. .	Laikdi	Ditto . . .	Barakar railway station.	2 " . . .	Do. . . .	Do. . . .	

55	Mudedi .	Mr. C. Hilly .	Mudedi .	Ditto .	Dhanbad railway station.	3 miles	Do.	Do.	Do.
56	Nirsadanga .	Rohini Kumar Roy .	Nirsadanga .	Ditto .	Nirhsa P. S. .	2 "	Do.	Do.	Do.
57	Nichitpur .	Mr. Augier .	.....	Ditto .	.....	.....	.....	Do.	Do.
58	Parbola .	Mr. Fox .	Parbola .	Ditto .	Jharla P. S. .	1 mile	Do.	Do.	Do.
59	Rajpura .	Guru Charan Tewari and others .	Rajpura .	Ditto .	Barakar station .	4 miles	Do.	Do.	Do.
60	Ditto .	Sheik Golam Ali .	Ditto .	Ditto .	Ditto .	4 "	Do.	Do.	Do.
61	Ditto .	Ayeb Joseph Kachi .	Ditto .	Ditto .	Ditto .	4 "	Do.	Do.	Do.
62	Ditto .	Golam Ali & Co. .	Ditto .	Ditto .	Ditto .	4 "	Do.	Do.	Do.
63	Sangamahol .	Dinesh Chandra Chatterjee .	Sangamahol .	Ditto .	Nirhsa P. S. .	4 "	Do.	Do.	Do.
64	Sitabad .	Ramcharan Dey .	Sitabad .	Ditto .	Ditto .	4 "	Do.	Do.	Do.
65	Satketa .	Ram Nath Das .	Satketa .	Ditto .	Dhanbad station .	2 "	Do.	Do.	Do.
66	Suardi .	.....	.....	Ditto .	.....	.....	.....	Do.	Do.
67	Sudamdi .	B. K. Lake, Esq. .	Sudamdi .	Ditto .	.....	.....	.....	Do.	Do.
68	Sutikdi .	Charles Smith, Esq. .	Sutikdi .	Ditto .	.....	.....	.....	Do.	Do.
69	Tentulia .	} Katras Jharla Coal Co	Tentulia .	Ditto .	Katras .	1 mile	Palki	Do.	Do.
70	Ditto .		Tentulia .	Ditto .	.....	.....	.....	Do.	Do.
71	Ditto .	.....	.....	Ditto .	.....	.....	.....	Do.	Do.
72	Niluapathra .	Gones Nath Palit .	Niluapathra .	Ditto .	Jharla P. S. .	1 "	Do.	Do.	Do.
73	Joyrampur .	Pasupati Banerjee .	Joyrampur .	Ditto .	Ditto .	1 "	Do.	Do.	Do.
74	Kapasara .	Bhutnath Rai .	Chirkunda .	Ditto .	Barakar .	1 "	Do.	Ghooting	Do.
75	Ditto .	Brojo Rai .	Kapasara .	Ditto .	Ditto .	1 "	Do.	Do.	Do.

SUPPLEMENTARY LIST OF MINES IN INDIA—*contd.*

No.	Name of Mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of Mine—State, Province, Division, Sub-division or District.	Nearest or most convenient Railway or other Station.	Distance from station.	Means available for getting to Mine from station.	Mineral wrought.	REMARKS. (Nearest Thana, etc.)
1		2	3	4	5	6	7	8	9
MADRAS PROVINCE.									
NELLORE DISTRICT.									
<i>Gudur Taluk.</i>									
1	Mica mine Policherla	Brahma Sri, Narayanasawmy Naidu.	Policherla (Zemin village.)	Palicherla . . .	Gudur railway station.	7 miles .	Douka path .	Mica.	
2	Do. Potragunta	Nallapa Reddi Subha Reddi.	Potragunta Shrotriem .	Potragunta . . .	Ditto	7 " .	Road and Douka path.	Do.	
3	Do. Mekanur .	Marram Reddi, Rama Chendra Reddi.	Mekanur . . .	Mekanur . . .	Ditto	5 " .	Douka path .	Do.	
4	Chennore .	B. Venka Subha Reddi	Kovar, Nellore Taluk .	S. No. 1846 of Chennore	Ditto	4 " .	Country bandies	Do.	
5	Kandali .	Mr. J. F. J. Ward and others.	Nellore Town . .	Kandali (Zemin village)	Ditto	7 " .	Douka path .	Do.	
<i>Rapur Taluk.</i>									
6	Marupur .	Shaik Nalu Khan Sahib.	Shaik Nalu Khan Sahib .	Marupur . . .	Nellore station.	13 miles .	Road to Marupur and cart-track to the mine.	Do.	
7	No. 161 Sekada .	Md. Sadak Alli Ismailji Sait & Co.	Gudur . . .	Turimerla . . .	Gudur station.	15 " .	Road to Turimerla and cart-track to the mine.	Do.	
8	No. 161 Reser ved Forest.	Ipur Narayana Reddi .	Ipur, Gudur Taluk .	Ditto . . .	Ditto	15 " .	Ditto .	Do. .	

9	No. 161 Kandeti-gunta.	Burla Venkata Subba Reddi.	Varagati, Gudur Taluk.	Ditto	.	.	.	Ditto	.	15 "	.	.	Ditto	.	Do.
10	Injamur mine.	Md. Sadak Ali Ismailji Salt & Co.	Gudur	Chaganam	.	.	.	Ditto	.	10 "	.	.	Road to Chaganam and cart-track to the mine.	.	Do.
11	Gundrati Gani	K. Venkiah	Nellore	Tamalatalapur	.	.	.	Manubole station.	.	12 "	.	.	Road to village and cart-track to the mine.	.	Do.
12	Ditto	Ditto	Ditto	Ditto	.	.	.	Ditto	.	12 "	.	.	Ditto	.	Do.
13	S. No. 214	Ditto	Ditto	Ditto	.	.	.	Ditto	.	12 "	.	.	Ditto	.	Do.
14	S. No. 420 Gup Chip mine.	Md. Khyrudeen Sahib	Ditto	Ditto	.	.	.	Ditto	.	12 "	.	.	Ditto	.	Do.
15	Thatimani mine	H. Md. Badsha Sahib & Co.	Madras	Ditto	.	.	.	Ditto	.	12 "	.	.	Ditto	.	Do.
16	Burla Bodu	Ditto	Ditto	Ditto	.	.	.	Ditto	.	12 "	.	.	Ditto	.	Do.
17	Ditto	Ditto	Ditto	Sydapuram	.	.	.	Gudur station.	.	9 "	.	.	Ditto	.	Do.
18	Tella Bodu	Ditto	Ditto	Ditto	.	.	.	Ditto	.	9 "	.	.	Ditto	.	Do.
19	Nandala Gunta	K. Venkiah	Nellore	Turpupundla	.	.	.	Ditto	.	9 "	.	.	Ditto	.	Do.
20	Ditto	Ditto	Ditto	Ditto	.	.	.	Ditto	.	9 "	.	.	Ditto	.	Do.
21	Ditto	H. Md. Badsha Sahib & Co.	Madras	Ditto	.	.	.	Ditto	.	9 "	.	.	Ditto	.	Do.
22	Polygunta	Ditto	Ditto	Utukar	.	.	.	Ditto	.	9 "	.	.	Ditto	.	Do.
23	Gudisaladina	K. Munisawmy Iyer	Chittur	Ditto	.	.	.	Ditto	.	9 "	.	.	Ditto	.	Do.
24	Attunani mine	Ditto	Ditto	Ditto	.	.	.	Ditto	.	9 "	.	.	Ditto	.	Do.
25	S. No. 292	Ditto	Ditto	Ditto	.	.	.	Ditto	.	9 "	.	.	Ditto	.	Do.
26	Konda mine	C. Suramulu Chett	Madras	Ditto	.	.	.	Ditto	.	9 "	.	.	Ditto	.	Do.

SUPPLEMENTARY LIST OF MINES IN INDIA—*contd.*

No.	Name of Mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of Mine—State, Province, Division, Sub-division or District.	Nearest or most convenient Railway or other Station.	Distance from Station.	Means available for getting to Mine from station.	Mineral wrought.	REMARKS. (Nearest Thana, etc.)
	1	2	3	4	5	6	7	8	9
MADRAS PROVINCE— <i>concl'd.</i>									
NELLORE DISTRICT— <i>cont'd.</i>									
<i>Gudur Taluk—concl'd.</i>									
27	Konda mine .	Burla Venkata Subba Reddi.	Veragali .	Utukar .	Gudur railway station.	9 miles .	Road to village and cart-track to the mine.	Mica.	
28	319 Tank .	Burla Ranga Reddi .	Kovar .	Ditto .	Ditto .	9 " .	Ditto .	Do.	
29	A. Chukka .	A. Subba Reddi .	Indukurpet .	Jogipalli Ananta Madugu.	Ditto .	9 " .	Ditto .	Do.	
30	Muni .	Ditto .	Ditto .	Ditto .	Ditto .	9 " .	Ditto .	Do.	
31	Biradovole Reserve .	Mavati Mahomed Sahib.	M. M. Sahib .	Biradavole, S. No. 460 .	Nellore railway station.	15 " .	Country bandies	Do.	
32	Ditto .	M. Pichi Reddi .	M. P. Reddi .	Ditto .	Ditto .	15 " .	Ditto .	Do.	
33	Marupur .	Devalla Narasa Reddi	Thateparti, Taluk.	Marupur Anadbbhunam Nos. 46 and 67.	Ditto .	13 " .	Ditto .	Do.	
34	Ditto .	Ditto .	Ditto .	Marupur Anadbbhunam No. 525	Ditto .	13 " .	Ditto .	Do.	
<i>Atmakur Taluk.</i>									
35	Mica mine .	D. Narasa Reddi .	Tatiparti .	Tatiparti .	Nellore station.	20 miles .	Road to village and cart track to the mine.	Mica.	
36	Ditto .	Lakku Chengak Reddi	Ditto .	Ditto .	Ditto .	20 " .	Ditto .	Do.	

37	Ditto	.	Shaik Md. Isman Sahib.	Ditto	.	Ditto	.	Ditto	.	20 "	.	Ditto	.	Do.
38	Ditto	.	Adapala Reddi.	Prabbagripatnam	.	Prabbagripatnam	.	Ditto	.	20 "	.	Ditto	.	Do.
39	Ditto	.	Messrs. Best & Co.	Messrs. Best & Co., Madras.	.	Nallupalem	.	Ditto	.	22 "	.	Ditto	.	Do.
40	Gudladona mine, Bouthalagani Kendrigegani.	.	R. Venkata Subba Reddi.	Gudladona	.	Vennayagunta driga.	.	Nellore railway station.	.	30 "	.	Bandy track	.	Mica.
41	Mica mine	.	M. Ranga Reddi	Arnariddipolem, Nellore Taluk.	.	Lakshimpuram (Zemin village.)	.	Ditto	.	34 "	.	Ditto	.	Do.
42	Timmasaumdrum Mica mine	.	Syyed Ali Saba Sahib.	Udayagiri	.	Timmasaumdrum	.	Ditto	.	45 "	.	Road	.	Do.
43	Gudanallore mine.	Mica	Sultan Mohidun Sahib	Nellore	.	Gudanallore	.	Ditto	.	67 "	.	Ditto	.	Do.
44	Chinakraka mine.	Mica	Nellore Ragavab & Co.	Ditto	.	Chinakraka	.	Ditto	.	44 "	.	Ditto	.	Do.

8—LIST OF MINES RETURNED AS HAVING STARTED DURING THE YEAR 1897.

Started during 1st half year 1897.

No.	Name of Mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of Mine—State, Province, Division, Sub-division or District.	Nearest or most convenient Railway or other Station.	Distance from Station.	Means available for getting to Mine from Station.	Mineral wrought.	REMARKS (Nearest Thana, etc.)
	1	2	3	4	5	6	7	8	9
				BENGAL PROVINCE. BURDWAN DIVISION.					
1	Dhundabad .	New Manboom Coal Co.	Manager, New Manboom Coal Co.'s Dhundabad Mine, <i>vide</i> Sitarampur.	Raniganj Sub-division .	Sitarampur station.	4 miles	Palki from Sitarampur or Alipuri hut (station) .	Coal .	Assansol. Mine is situated at mile 14½ on the Salanpur and Shandi branch line, E. 1. R., or about 3 miles from Alipur hut block (station.)
2	Kalipahari .	South Ringa Coal Co.	Manager, South Ringa Coal Co.'s Kalipahari mine, Kalipahari, E. 1. R.	Ditto .	Kalipahari .	½ mile	Horse or palki .	Ditto	Assansol.
3	Mosila .	Purma Chandra Bagchi	Manager, Purma Chandra Bagchi's Mosila mine.	Ditto .	Ditto .	¼ ”	Ditto	Ditto	Do.
4	Keshabganj .	East India Coal Co.	Manager, East India Coal Co.'s Keshabganj Mine, Keshabganj.	Ditto .	Ditto .	½ ”	Ditto	Ditto	Do.
5	Chhora .	Ondal Coal Co. .	Manager, Ondal Coal Co.'s Chhora mine, Chhora.	Ditto .	Topsi railway station.	4 miles	Horse .	Ditto	Raniganj.
6	Nandirajpur .	Babu Radharaman Ghosh.	Manager, Babu Radharaman Ghosh's Nandirajpur Mine, Nandirajpur.	Ditto .	Jamuria Railway station.	1 mile	Ditto .	Ditto	Do.

7	Bhanara	.	C. B. Coal Co.	.	Manager, C. B. Coal Co.'s Bhanara Mine, Bhanara.	Ditto	.	Domohuni station.	.	1½ miles	.	Horse or paliki	.	Ditto	.	Assansol.
8	Charanpur	.	Reliance Coal Co., Ltd.	.	Manager, Reliance Coal Co.'s Charanpur Mine, Charanpur.	Ditto	.	Ditto	.	2 "	.	Ditto	.	Ditto	.	Do.
9	Baraboni	.	Babu Kanoo Lall Burmon,	.	Manager, Babu K. L. Burmon's Baraboni Mine.	Ditto	.	Ditto	.	1 mile	.	Ditto	.	Ditto	.	Do.

Started during and half of the year.

BURDWAN DIVISION.															
10	Nandirajpur .	Adjai Coal Co. .	Nandirajpur .	Nandirajpur .	Nandirajpur .	Jamuria Ry. Sta- tion.	mile	Horse	Coal .	Thana Rani- ganj. No coal ob- tained yet.					
11	Koithe .	Ditto	Koithe .	Koithe .	Koithe .				Horse or paliki	Ditto	Do.				
12	Shibpur .	Ditto	Shibpur .	Shibpur .	Shibpur .				Ditto	Ditto	Do.				
13	Satpukuria .	D. Khetri .	Satpukuria .	Satpukuria .	Satpukuria .				Assansol railway station.	2 "	Ditto	Thana Assansol.			
14	Mosila .	Baranosi Rai .	Mosila .	Mosila .	Mosila .	Kalipahari railway station.	1/2 mile	Ditto	Do.						
15	Union Colliery	Radhika Charan Ban nerjee.	Ditto	Ditto	Ditto	Ditto	1/4 "	Ditto	Do.						
16	Bhanara .	Kunjabeahary Chowdhury.	Pal Bhanara	Bhanara .	Bhanara .	Domohuni station.	"	Ditto	Thana Assansol. No coal ob- tained yet.						
17	Kantapahari .	Barakar Coal Co.	Kantapahari .	Kantapahari .	Kantapahari .	Gourangdi railway station.	1 "	Ditto	Do.						

LIST OF MINES STARTED *encl* *1904*

Started during 2nd half of the year 1897.

No.	Name of Mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of Mine—State, Province, Division, Sub-division or District.	Nearlest or most convenient Railway or other Station.	Distance from station.	Means available for getting Mine from Station.	Mineral wrought.	REMARKS. (Nearest Thana, etc.)
.	.	2	3	4	5	6	7	8	9
				CHOTA NAGPUR DIVISION.					
				HAZARIBAGH DISTRICT.					
				<i>Government Mines newly started.</i>					
1	Jamunia .	W. D. Clyburn, Esq..	Baghitand, Koderma .	Koderma P.S. .	Giridih . .	60 miles. .	By palki bearers or push.	Mica.	
2	Inderwa .	Michael Sullivan, Esq.	Inderwa, Koderma P. S. Sub-division Hazaribagh.	Ditto . .	Ditto . .	Ditto . .	Ditto .	Do.	
3	Foolai .	E. Cox, Esq. .	Koderma . .	Ditto . .	Ditto . .	Ditto . .	Ditto .	Do.	
4	Tilya .	Khiredhur Naik .	Ditto . .	Ditto . .	Ditto . .	Ditto . .	Ditto .	Do.	
5	Panoa .	}							
6	Jaharia .	}							
7	Hirooa .	}							
8	Minkia .	Babu Kanhai Lal Sinha.	Ditto . .	Ditto . .	Ditto . .	Ditto . .	Ditto .	Do.	
9	Motia .	}							
10	Mukutia .	}							
11	Roopooa .	}							
12	Sonoa . .	}							

13	Karooa . . .	} Karu Sahu . . .							
14	Balchandon . . .		Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Do.
15	Bagloa . . .								
16	Hari mine . . .	} Babu Hari Chatterji. Prosad							
17	Amla . . .		Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Do.
18	Tamahia . . .								
19	Bisseswar . . .								

List of Mines returned as having started during the 1st half of the year 1897 in Burma.
UPPER BURMA.

TENASSERIM DIVISION.
Tavoy District.

1	Tin Mine . . .	Mg. Shwe Tun . . .	Zargit Quarter, Tavoy Town.	Northern Township, Kala-chaung shwe aung Gy-awsokpyat and Onbinquin Zadi Circle.	No railway	59 miles from Tavoy Town.	Partly by cart and foot.	Tin.
2	Ditto . . .	Mg. Shwe Gyan . . .	Ngatwe Village, Tavoy District.	Central Township, Kum-bunchon and Luckchan kwin Myitta Circle	Ditto	18 miles from Tavoy Town.	Ditto	Do.
3	Ditto . . .	Mg. Kyaw Dun . . .	Sinzeik village, Tavoy District.	Northern Township, Onbinquin Zadi Circle.	Ditto	59 miles from Tavoy Town.	Ditto	Do.

List of Mines returned as having started during the 1st half year of 1897 in the Madras Province.
MADRAS PROVINCE.

Visagapatam District.

1	Garbham Mangane- nese Mine.	The Maharaja of Vitanagram and others.	Manager, Garbham Man- ganese Mine.	Garbham Gajupat in a gram Taluk.	Garividi railway station, East Coast Railway.	10 miles . . .	Cart . . .	Manganese . . .
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9.—LIST OF MINES RETURNED AS ABANDONED OR OF WHICH THE WORKING WAS DISCONTINUED DURING THE YEAR 1897.

No.	Name of Mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of Mine—State, Province, Division, Sub-division or District.	Nearest or most convenient Railway or other Station.	Distance from station.	Means available for getting to Mine from Station.	Mineral wrought.	REMARKS. (Nearest Thana, etc.)
1		2	3	4	5	6	7	8	9

Abandoned during 1st half of year 1897.

BURDWAN DIVISION.

1	Shyamdehi	Bhabataran Hazra	Manager, Bhabataran Hazra's Shyamdehi Mine, Shyamdehi.	Raniganj Sub-division	Sitarampur railway station.	5 miles	Horse or palaki	Coal	Assansol.
2	West Ghusick	Hiramba Chaudhuri and Pal Chaudhuri.	Manager, H. and P. Chaudhuri West Ghusick Mine.	Ditto	Kalipohari railway station.	¼ mile	Ditto	Ditto	Do.
3	Jamgram	Raniganj Coal Association.	Jamgram	Jamgram	Gourangdi railway station	3 miles	Ditto	Ditto	Do.

Abandoned during 2nd half of year 1897.

The Mines numbered 22 to 42, 60 to 145, 148, 149, 151 to 163, 168 to 176, 191 to 196, 224 to 228, and 277 to 280.

10.—STATEMENT SHOWING THE DISTRICTS, ETC., FROM WHICH
RETURNS HAVE BEEN RECEIVED FOR 1897.

Divisions, Districts and Sub-divisions from which received.	Form 26.—Names and positions of new mines started and of old mines stopped.	Form 23.—Output, persons employed, etc.
BENGAL—		
Burdwan, Chota-Nagpur and Rajshai Divisions . . .	Received . . .	
Burdwan Division, Raniganj Sub-division, the Borra Coal Co.'s Salanpur Mines	Received . . .	An irregular form was sent in which many of the necessary particulars were omitted.
Burdwan Division, Raniganj Sub-division, Burmon's Baraboni Colliery	Received . . .	.....
Chota Nagpur, Bhagulpur Division, and Sonthal Pargannas . . . . .	.....	Received.
ASSAM—		
Lakhimpur and Naga Hills Districts	Received . . .	Received.
North-Western Provinces and Oudh	Received . . .	.....
CENTRAL PROVINCES—		
Chanda and Narsingpur Districts and Rewah States . .	Received . . .	Received.
PUNJAB—		
Shahpur and Jhelum Districts Salt Mines and Collieries.	Received . . .	Received.
Hyderabad Assigned Districts	Received blank . .	Received blank.
BOMBAY	Received . . .	Received.
MADRAS—		
North Arcot, Nellore, Trichinopoly and Vizagapatam Districts	Received . . .	.....
Travancore State	Received . . .	Received blank.
North Arcot and Vizagapatam Districts . . . . .	.....	Received.
Godavari District (for Coal and Graphite) . . . . .	.....	Received.
Nellore District, Gudur, Rapur, and Kavali Taluks . .	.....	Received.
Atmakur Taluk . . . . .	.....	Received.
BURMA	Received . . .	.....
HYDERABAD (DECCAN) . . . . .	.....	Received.
BALUCHISTAN . . . . .	.....	Received.

IMPORT AND NOTE.—It should be particularly noted that only a few of the necessary total of returns of Form 23 were received. The return for the Raniganj Sub-division of Burdwan failed to give most of the necessary particulars. It is impossible to give accurate and reliable statistics from the few irregular returns received.

**II.—SPECIAL MATTERS OR STATEMENTS FROM RETURNS RECEIVED
FOR 1897.**

No.	Names of Districts, etc.	Particulars.	REMARKS.
1	Bengal . . .	"The returns for the other divisions in the Province (other than Burdwan, Chota Nagpur, Bhagulpur, Rajshai Divisions and the Sonthal Pargannas) are blank."	
2	Assam . . .	"No new mines were started or old ones abandoned or discontinued working during the year 1897."	
3	North-Western Provinces and Oudh.	"No mines working in these Provinces at present." Returns blank.	
4	Central Provinces .	"No coal mines were started, or old ones abandoned during the year 1897."	And probably no other kind of mine.
5	Punjab . . .	"No new mines were started, or old ones abandoned during the year 1897."	
6	Hyderabad Assigned Districts.	"No mines at work in these districts at present."	
7	Bombay Presidency	"Information regarding quarries is omitted. The returns for Districts and States other than Hyderabad, Kathiawar, Palanpur, and Rewakantha are blank."	Returns for quarries were sent in the year 1895.
8	Madras Province,— Travancore State.	"No new mines were started, or old ones abandoned in this State during the year 1897."	Returns are blank.
	Godavari District .	The Manager of the Godavari Coal Co., Ltd., reports that "no work was carried on in the mines; they were practically closed, and that operations were exclusively confined to making borings."	One coal mine, with 133 employés, was referred to in the return of Form 23 for the year 1896 but the mine had not raised coal during that year. Also in the year 1896 there was 17½ tons of dressed sorted and cleaned graphite worked out of two hills with north and south extension by 19 persons 8 below ground and 11 above ground.
9	Burma . . .	"Three new tin mines were started, but no mines abandoned or discontinued during the first-half of year 1897. In the second-half of year 1897 no new mines were started, or old ones abandoned."	
10	Rajputana— Ajmere-Merwara .	"There are no mines at work in this district."	There are mines, or quarries, working in other parts of Rajputana.

12.—NUMBERS OF MINES FOR WHICH RETURNS WERE RECEIVED FOR THE YEAR 1897, AND ALSO AS SHOWN ON THE "LIST OF MINES IN INDIA."

Summary of the numbers of mines for each mineral in the various mining districts of India.

Name of mineral or kind of mine.	Provinces, Divisions, Districts, etc.	Number of mines for which returns were received.	Number of mines as shown in the List of Mines in India.	REMARKS.
COAL	BENGAL PROVINCE.			
	Burdwan Division and District	132	123	
	Daling District		1	
	Hazaribagh „		6	
	Manbboom „		100	
	Sonthal Parganas.		3	
	TOTAL	132	233	Difference 101.
Ditto	CENTRAL PROVINCES.			
	Chanda District	3*	1	
	Narsinghpur „		1	* Fireclay was also wrought at one of the mines.
	Rewah State		1	
	TOTAL	3*	3*	* These consist of 11 pits and inclines.
Ditto	PUNJAB PROVINCE.			
	Jhehum District	3	3	
Ditto	MADRAS.			
	Godavari District	*	1	* The operations were exclusively confined to making borings.
Ditto	ASSAM.			
	Naga Hills District	3	1	
	Lakhimpur „		2	
	TOTAL	3*	3	* These comprise 6 separate pits.
Ditto	HYDERABAD (DECCAN).			
	Yellandu, Singareni Colliery	1*	1*	* These comprise 6 separate inclines and pits.
Ditto	BURMA.			
	Shwebo District	...	1	
	Thayetmyo „	...	1	
	TOTAL	..*	2	* No returns received.
Ditto	BALUCHISTAN.			
	Quetta District	5	5	
	Frontier, Bolan, etc., Districts	1	2	
	TOTAL	6	7	
	TOTAL COAL MINES	Returns received for 148 mines.	On List—253 mines.	Difference 105.

The difference of 105 coal mines is probably due to some of the mines not having sent the return (Form 23), as well as some of the mines having ceased working without this being notified on Form 26.

Name of mineral or kind of mine.	Provinces, Divisions, Districts, etc.	Number of mines for which returns were received.	Number of mines as shown on the List of Mines in India.	REMARKS.
MICA	BENGAL PROVINCE.			This shows great neglect in sending the required returns.
	Hazaribagh District	87	376	
	Monghyr „		4	
	Gya „		3	
	TOTAL	87	383	
	MADRAS.			
	Nellore District	31	77	
	TOTAL MICA MINES	118	460	
STONE	BENGAL PROVINCE.			
	Manbhoom District	...	7	
	BOMBAY PRESIDENCY.			
	Cutch State	...	9	
	Kathiawar	...	7	
	Palanpur District	...	2	
	Rewakantha „	...	6	
	Mahikantha	...	9	
	TOTAL	...	40	
GOLD	BOMBAY PRESIDENCY.			
	Dharwar District	...	1	
	Ahmednagar „	...	1	
	BENGAL PRESIDENCY.			
	Manbhoom District	...	1	
	Singbhum „	...	...	
	BURMA.			
	Khatha District	...	1	
	Tavoy „	...	1	
	MYSORE STATE.			
	Mysore District	...	1	
	Kolar „	...	12	
	MADRAS.			
	Shimoga District	1	3	
	Hossan „		2	
	North Arcot „		1	
	HYDERABAD (DECCAN).	2	2	
	TOTAL GOLD MINES, INCLUSIVE OF THE KOLAR GOLD MINES IN MYSORE. }	3	26	
LIMESTONE.	BENGAL PROVINCE.			
	Manbhoom District	...	2	

Name of mineral or kind of mine.	Provinces, Divisions, Districts, etc.	Number of mines for which returns were received,	Number of mines as shown on the List of mines in India.	REMARKS.
	BOMBAY PRESIDENCY.			
	Shikarpur District	...	25	
	Ahmednagar	...	1	
	ASSAM.			
	Khasi and Jaintia Hills District . .	...	8	
	TOTAL .		36	
STONE METAL.	BOMBAY PRESIDENCY.			
	Poona District	...	9	
	BENGAL PRESIDENCY.			
GHOOTING.	Manbhoom District	5	6	
	BENGAL PRESIDENCY.			
SLATES .	Monghyr District	4*	2	The four mines for which returns were received are represented as one mine on the List of Mines.
	BOMBAY PRESIDENCY.			
	Panch Mahals	...	1	
	PUNJAB PROVINCE.			
SALT . .	Jhelum and Shahpur Districts .	3	6	
	PUNJAB PROVINCE.			
ALUM SHALE	Shahpur District	...	1	
	PUNJAB PROVINCE.			
IRON . .	Kangra District	...	1	
	BOMBAY PRESIDENCY.			
FULLER'S EARTH.	Hyderabad District	...	1	
	BOMBAY PRESIDENCY.			
CLAY . .	Palanpur State	...	1	
	MADRAS PRESIDENCY.			
DIAMONDS .	Anantpur District	...	1	
	BURMA.			
PRECIOUS STONES.	Ruby Mines District	...	4	
	MADRAS PRESIDENCY.			
MANGANESE.	Vizagapatam District	1 mine and several quarries.	1	

Name of mineral or kind of mine.	Provinces, Divisions, Districts, etc.	Number of mines for which re- turns were received.	Number of mines as shown on the List of Mines in India.	REMARKS.
	BURMA.			
TIN . . .	Moulmein Division	...	4	
	MADRAS PRESIDENCY.			
PHOSPHATIC NODULES.	Nellore District	...	1	
	MADRAS PRESIDENCY.			
GRAPHITE .	Godavari District	1	1	
	CENTRAL PROVINCES.	...	...	
FIRECLAY .	Chanda District	1	1	This is a coal mine at which a little fireclay is obtained.
		Total mines for which returns were re- ceived— 284.	Total mines on List of Mines in India— 856.	Difference 572.

13.—INDIAN MINES, MINERALS, AND EMPLOYÉS FOR THE YEAR 1897.

Particulars collected from the returns of Form 23.

1	2	3	4	5	6	7	8	9	10	11	12
	Names or descriptions of minerals wrought.	Number of mines at which each mineral was being worked during December 1897.	State or condition of the mineral, as described, whether dressed or undressed, etc.	Output of coal in 1897.		Average annual output of coal in the 3 years previous to 1897.	DAILY AVERAGE NUMBER OF MINERS AND WORK-PEOPLE EMPLOYED.			TOTAL.	REMARKS.
				Weight wrought of minerals as named or described.	Value.		Males.	Females.	Children.		
Bengal Province, Burdwan Division, Ranigunge Sub-division.	Coal	83	Dressed and undressed.	Tons. 2,030,007	Rupees. 51,51,975	Tons. 1,457,362	16,906	6,174	1,478	24,558	Apparently, about Rs-14-0 per ton of coal. Much of this information for the Burdwan Division was given late, and in an irregular form, in which many of the necessary particulars were omitted.
Burdwan Division, Bunkura Sub-division	Do.	3	Do.	9,922	16,997	Tons 6,987 and two mines, the average of which could not be taken, having been started less than three years ago.	220	45	5	270	.....

INDIAN MINES, MINERALS, AND EMPLOYÉS—contd.

1	2	3	4	5	6				7		
Situation of Mine, State, Province, Division or District.	Names or descriptions of minerals wrought.	Number of mines at which each mineral was being worked during December 1897.	State or condi- tion of the minerals as named or des- cribed, whether dressed or undressed, etc.	Weight wrought of minerals as named or described. Tons. cwts. qrs.	NUMBER OF PERSONS EMPLOYED AT EACH KIND OF MINE.				REMARKS.		
					BELOW GROUND.		Total below ground.	ABOVE GROUND.			
					Males.	Females.		Males.		Females.	Total above ground.
BENGAL PROVINCE —											
Chota-Nagpur Division, Hazaribagh District, Giridih Sub-division	Coal	{ 4 8	Dressed	140,789 0 0	1,039	324	1,363	243	358	1,964	
			Undressed	523,995 0 0	3,752	1,603	5,355	2,249	1,471	3,720	9,075
Sonthal Parganas, Dumka Sub-division	Do.	3	Undressed	879 0 0	30	11	41	29	15	44	85
Chota-Nagpur Division, Manbhoom District, Govindpur Sub-division	Do.	{ 5 26	Dressed	3,300 0 0	24	18	42	7	12	19	61
			Undressed	414,288 0 0	2,984	1,621	4,605	2,218	1,191	3,409	8,014
TOTALS	Do.	9	Dressed	144,089 0 0	1,063	342	1,405	250	370	620	2,025
	Do.	37	Undressed	939,072 0 0	6,766	3,235	10,001	4,456	2,677	7,173	17,174
	Do.	86	Dressed and undressed	2,039,929 0 0	...	...	...	...	...	...	24,828
TOTALS FOR THE BENGAL COAL MINES	"	132	...	3,123,090 0 0	7,829	3,577	11,406 TOTAL B. G.	4,746	3,047	7,793 TOTAL A. G.	44,027 TOTAL PERSONS
ASSAM.											
Lakhimpur	Coal	4	Undressed	184,271 0 0	465	311	776	482	238	720	1,496
Naga Hills	Do.	2	Do.	1,253 0 0	...	...	...	61	...	61	
TOTAL FOR ASSAM COAL MINES.	Do.	6	Undressed	185,524 0 0	465	311	776	543	238	781	1,557

INDIAN MINES, MINERALS, AND EMPLOYÉS—*contd.*

1	2	3	4	5	6						7		
Situation of Mine, State, Province, Division or District.	Names or descriptions of minerals wrought.	Number of mines at which each mineral was being worked during December 1897.	State or condition of the minerals as named or described, whether dressed or undressed, etc.	Weight wrought of minerals as named or described.	NUMBER OF PERSONS EMPLOYED AT EACH KIND OF MINE.						REMARKS.		
					BELOW GROUND.		Total below ground.	ABOVE GROUND.		Total above and above ground.			
					Males.	Females.		Males.	Females.				
BALUCHISTAN.													
Frontier District.													
Khost	Coal.	4	Dressed	8,788 0 0	153	...	153	64	...	64	217	Colliery closed till again required.	
Shahrig	Do.	4	Do.	88 0 0	...	...	...	1	...	1	1		
Bolan District.													
Les	Do.	1	Do.	361 3 0	12	...	12	4	...	4	16		
Mach Kalat District	Do.	1	Do.	2,555 11 0	20	...	20	40	10	50	70		
Quetta District.													
Sor Range Hills	Do.	...	Do.	361 4 0	12	...	12	6	...	6	18		
TOTALS FOR THE BALUCHISTAN COAL MINES.					12,153 18 0	197	...	197	115	10	125	322	
					Tons. cwts. qrs.								
The total output of the coal in India					393,788 3 0	of dressed coal.							
					1,230,250 0 0	of undressed coal.							
					2,405,479 4 0	of dressed and undressed coal.							
Total output of coal from all the mines in India					4,035,517								

BENGAL PROVINCE.

Chota-Nagpur Division, Hazaribagh District, Giridih Sub-division	Mica	39	Dressed	6,951	Mds.	382	21	403	115	233	348	751
		41	Undressed	3,846	"	7,519	2,388	5,807	16,375	7,831	24,206	34,013
		2	Dressed	272	"	40	...	40	100	60	160	200
Patna Division, Monghyr District		3	Undressed	168	"	32	5	37	66	25	91	128
		2*	Do.	352	"	30	15	45	...	...	..	45
* These two mines were no at work during the half-year ending 31st December 1897.												
TOTAL FOR THE BENGAL PROVINCE MICA MINES.	Do.	41	Dressed	7,223	"	422	21	443	215	293	508	951
		46	Undressed	4,366	"	7,581	2,308	9,889	16,441	7,856	24,297	34,186
TOTALS	.....	87	Dressed and Undressed.	11,589	"	8,003	2,329	10,332	16,556	8,149	24,805	35,137
MADRAS PROVINCE.												
Nellore District, Kavali Taluk	Mica	3	Dressed	1,150	lbs.	24	...	24	29	22	51	75
Nellore District, Armakur Taluk	Do.	7	Undressed	5,013	"	4,082	2,243	6,325	560	328	888	7,213
Nellore District, Gudur Taluk	Do.	2	Dressed	13,618½	"	Number of persons employed daily not stated in the returns.						
	Do.	5	Do.	7,643½	"	119	64	183	24	35	59	242
	Do.	1	Undressed	About 500,000 lbs.		410	100	510	120	...	120	630
	Do.	1	Do.	Not known		18	8	26	3	...	3	29
	Do.	3	Do.	Ditto		45	40	85	10	5	15	100
Nellore District, Rapur Taluk	Do.	1	Do.	Ditto		11	5	16	...	...	...	16
	Do.	1	Do.	About 55 lbs.		17	20	37	2	...	2	39

These works were closed on the 30th June 1897.

The quantity wrought could not be a certain as the agent is said to be absent from the mine.

The contractor has not given particulars of quantity dug out.

This was being worked from December 1897. No good mica was said to have come out.

Opened only for 2 months.

INDIAN MINES, MINERALS, AND EMPLOYÉS—*contd.*

1	2	3	4	5	6						7
					NUMBER OF PERSONS EMPLOYED AT EACH KIND OF MINE.						
					BELOW GROUND.		Total below ground.	ABOVE GROUND.		Total above ground.	
					Males.	Females.		Males.	Females.		
SITUATION OF MINE, STATE, PROVINCE, DIVISION OR DISTRICT.	Names or descriptions of minerals wrought.	Number of mines at which each mineral was being work- ed during December 1897.	State or condition of the minerals as named or des- cribed, whether dressed or undressed, etc.	Weight wrought of minerals as named or described.						REMARKS.	
Nellore District, Rapur Taluk	Mica . .	4	Undressed .	Nil . .	28	34	62	...	...	62	No mica has yet been pro- duced as the mines are said to have been very recently opened.
	Do. . .	2	Do. . .	47,214 Rathis.	...	...	...	...	...	500	Particulars of male and female coolies were not given by contractors.
	Do. . .	1	Do. . .	Nil . .	1,246	840	2,086	...	...	2,086	No mica is reported to have been obtained from this mine.
Output not given for five mines, and there was no output for five mines.											
Output has been given for 21 mines.											
The number of persons employed was not given for two mines.											
The number of persons employed was given for 29 mines.											
TOTALS FOR MADRAS MICA MINES	For mica .	10	Dressed .	lbs. 22,411½ or about 2,800 mds.	143	64	207	53	57	110	317
	Ditto .	9	Undressed .	lbs. 505,068 or 6,313 mds.	4,510	2,363	6,873	682	328	1,010	7,883
	Ditto .	2	Do.	Rathis 47,214 .	...	...	...	...	...	...	500
	Ditto .	10	Do.	Amount known.	1,348	927	2,275	13	5	18	2,293
					6,001	3,358	9,355	748	390	1,138	10,993
TOTALS FOR INDIA MICA MINES	Total quantity of mica wrought in India was 10,023 maunds of dressed mica.										
	10,679 " and 47,214 Rathis of undressed mica,										
					Total .	20,702	" of mica.				

HYDERABAD (DECCAN).														
Gulburga Raichur, Wondalli Gold Mine	Gold	.	.	1	Dressed	.	255 ozs. of gold.	706	...	706	340	98	438	1,144
Hyderabad Province, Lingsugur District	Do	.	.	1	Do.	.	1,653 Tons of ore.	280	...	280	140	175	315	595
TOTALS	Gold	.	.	2	Dressed gold ore.	.	255 ozs. of gold. 1,653 Tons of ore	986	...	986	480	273	753	1,739
MADRAS PROVINCE.														
North Arcot District	Gold	.	.	1	Undressed	.	Oz. dwt. gr. 876 1 0	235	...	235	95	35	130	365
The above does not include the output for the Kolar Gold Mines.														
PUNJAB PROVINCE.														
Jhelum District.														
Mayo Salt Mine	Rock Salt	.	.	1	Undressed	.	Tons. cwt. qrs. lbs. 60,547 9 2 14½	700	470	1,170	110	10	120	1,290
Nurpur Mine	Do.	.	.	1	Do.	.	135 14 3 7½	3	...	3	...	...	...	3
Shahpur District	Do.	.	.	1	Do.	.	3,152 18 2 2	62	61	123	2	...	2	125
TOTALS	Do.	.	.	3	Do.	.	63,836 2 3 23½	765	531	1,296	112	10	122	1,418
Total quantity of salt wrought in India for which returns were received was 63,836 Tons 2 cwt. 3 qrs. 23½ lbs. of undressed salt.														
BENGAL PROVINCE														
Patna Division.														
Monghyr District	Slate	.	.	4	Undressed roofing and flooring slate.	.	Not given.	4	...	4	201	110	311	315

INDIAN MINES, MINERALS, AND EMPLOYÉS—concl'd.

1	2	3	4	5	6				7	
Situation of mine, — State, Province, Division or District.	Names or descriptions of minerals wrought.	Number of mines at which each mineral was being wrought during December 1897.	State or condition of the minerals as named or described, whether dressed or undressed, etc.	Weight wrought of minerals as named or described.	NUMBER OF PERSONS EMPLOYED AT EACH KIND OF MINE.				REMARKS.	
					BELOW GROUND.		Total below ground.	ABOVE GROUND.		Total below and above ground.
					Males.	Females.		Males.	Females.	
BENGAL PROVINCE.										
Chota-Nagpur Division.										
Manbhoom District	} Ghooting .	5	Undressed .	Tons. 206	30	25	55	38	30	123
Gobindpur Sub-division										
MADRAS PROVINCE.										
Vizagapatam District	} Mangane .	1 mine and several quarries Do.	{ Dressed and undressed.	27,944 50,000	...	...	...	1,050	800	1,850
					...	...	...	650	250	900
TOTALS .		2 mines and several quarries.	Dressed and undressed.	77,944	...	...	...	1,700	1,050	2,750
Godavari District	Graphite .	1	Dressed .	1 ons. cwt. qr. 93 5 1	12	...	12	10 males and females.		22

14.—RETURNS OF THE NUMBER OF PERSONS EMPLOYED FOR EACH MINERAL, EXCLUDING THOSE FOR RAJPUTANA, 1897.

MINERAL.	Year.	BELOW GROUND.		Total below ground.	ABOVE GROUND.		Total above ground.	Total above and below ground.	REMARKS.
		Males.	Females.		Males.	Females.			
Coal	1896	13,965	5,773	19,738	8,621	6,190	14,811	34,549	* This total includes 17,126 males, 6219 females and 1,483 children whose place of work as being above ground or below ground was not stated.
Totals for coal mines .	1897	16,564	5,323	21,887	7,495	3,482	10,977	* 57,692	
Mica	1896	1,899	514	2,413	1,434	1,740	3,174	5,587	
Totals for mica mines .	1897	14,004	5,683	19,687	17,404	8,539	25,943	* 46,130	* This total includes 500 persons whose place of work as being above ground or below ground and their sexes were not stated.
Ghooting (limestone)	1896	40	41	81	27	18	45	126	
Totals for ghooting .	1897	30	25	55	38	30	68	123	
Gold	1897	1,221	...	1,221	575	308	883	* 2,104	* This total does not include those employed in the Kolar Gold Mines, Mysore State.
Salt	1897	112	10	122	765	531	1,296	1,418	
Slate	1897	4	...	4	201	110	311	315	
Manganese	1897	...	...	...	1,700	1,050	2,750	2,750	* Including 25,328, for whom no information as to sex or place of work was given.
Graphite	1897	12	...	12	10 males and females		10	22	
Gross Totals .	1896	15,904	6,328	22,232	10,082	7,948	18,030	40,262	
"	1897	31,947	11,041	42,988	28,188	14,050	42,238	110,554	

NOTE.—No returns were received from Rajputana, as it appears that the mines for which returns were previously received are only a series of open quarries. The totals for 1896 and 1897 should not be taken as accurate, the returns were not received sufficiently complete to enable accurate and reliable statistics to be made out.

15.—ACCIDENTS—Form 24.

The following are the particulars of the fatal accidents that occurred at the Indian mines during the year 1897.

The particulars for the Mysore mines will be dealt with separately.

NOTE.—I wish to again call attention to the fact that the returns are not yet being regularly and punctually sent to me, some are not sent at all, and others are sent in such a way as to make it impossible to arrange the statistics either in proper time or with completeness or accuracy.

I have received notices of 54 separate accidents, for the year 1897, that caused the loss of 77 lives. Twenty persons were killed in Bengal, but in an annual return sent in for the whole of Bengal only 11 of the deaths were accounted for, but, on the other hand, some particulars were given of 42 serious non-fatal accidents.

It is very necessary that notices of all fatal accidents should be given as soon as possible.

The earthquake that visited India on the 12th of June appears to have caused at least 20 deaths in the mines, 17 of these happened in an Assam mine at the time of the earthquake, and 3 other lives were lost in an Assam mine a few days after the earthquake but due to it, so it was reported.

I have given some detailed particulars, with remarks, respecting every fatal accident that was notified to me during the year ; and I have added further particulars and remarks on page 116.

The following are copies of Form 24, giving particulars of all the fatal accidents that have been reported for the year 1897.

FALLS IN MINE.

Fatal Accidents during the year 1897 from (1) -- Falls of roof--stone or coal.

1	2	3	4	5	6	7	8	9	10	11
Date of accident.	Hour of day or night.	Name of the mine.	Situation of mine.	Description of mine or name of mineral wrought.	Name of the owner or Company.	Names and number of the persons killed, and whether male or female.	Reputed ages.	Occupation.	Cause of accident according to terms detailed on Form 25, and whether above or below ground.	REMARKS on cause of death.
2nd May 1897	7 A.M.	Gongootia colliery.	Ranigunj Sub-division, Burdwan District.	Coal.	Bengal Nagpur Coal Company, Ltd.	Male. Paroo Koormi.	15	Miner	Falls in mine. Fall of roof.	STONE.—Reported as due to his own carelessness. I inspected and made enquiries.
12th June 1897	5-12 P.M.	Cherra Mine.	In the range of hills about 2 miles to the south of the village of Cherrapunji, and between it and Maosmai.	Do.	Cherra Siem and British Government.	17 Males.	...	Cooly labourers.	Do.	STONE.—This accident was caused by falling roof, due to the earthquake of the 12th June 1897. "The coal mines were worked by the Khasias themselves. They are situated near Cherra, and are of no great extent, and entirely unscientific. The roof which is of sandstone, and high enough at the entrance to admit a man erect, rapidly diminishes in height, and is either supported or feebly supported by beams and in places columns of coal left for the purpose. It is easy to understand how the workers under such conditions were buried by the collapse of the roof and feeble support." The Deputy Commissioner.
28th July 1897	7 A.M.	No. 2 Incline, Sodepur Colliery.	Ranigunj Sub-division, Burdwan District.	Do.	Bengal Coal Company, Ltd.	Male. Jugal, Bowry.	25	Miner	Do.	COAL.—Some roof coal fell on him. This case was also reported as due to his own carelessness, the deceased having been ordered not to work in that place.

FALLS IN MINE—contd.

Fatal Accidents during the year 1897 from (1)—Falls of roof—stone or coal.

1	2	3	4	5	6	7	8	9	10	11
Date of accident.	Hour of day or night.	Name of the mine.	Situation of mine.	Description of mine or name of mineral wrought.	Name of the owner or Company.	Names and number of the persons killed, and whether male or female.	Reputed ages.	Occupation.	Cause of accident according to terms detailed on Form 25, and whether above or below ground.	REMARKS on cause of death.
19th November 1897	2 A.M.	Dandot Main Mine.	Dandot, Jhelum District, Punjab.	Coal	North-Western Railway Co.	Male. Nawab, son of Waras.	45	Coal cooly.	Falls in mine. Fall of roof.	STONE (shale).—This man was suffocated by being buried with roof shale that fell where coal had previously been taken out. Owing to the place being very narrow, it took a long time to get him out, and he died before he could be released.
21st January 1897	9 A.M.	No. 4 Adit	Khost, Baluchistan.	Do.	North Western Railway Co.	Male. Hasan	30	Miner	Do.	Instantaneously killed by a fall of roof shale.
20th April 1897	3 A.M.	No. 13 pit	Yellandu, Hyderabad (Deccan).	Do.	Hyderabad (Deccan) Company, Ltd.	Male. Joga Lingoo	40	Filler	Do.	Killed by a fall of roof stone.
13th February 1897	11 A.M.	Upper Ledo	Ledo	Do.	Assam Railways and Trading Company, Ltd.	Male. Thonor	24	Coal raker	Do.	COAL.—Caused by coal falling from between two slips without warning.
12th March 1897	4 P.M.	Tikak	Tikak	Do.	Do.	Female. Goneshia	23	Filler	Do.	COAL.—From a fall caused by a bump.
18th April 1897	5 A.M.	Namdang	Namdang	Do.	Assam Railways and Trading Company, Ltd.	Female. Jettao	22	Coal filler	Do.	COAL.—Reported to have happened whilst deceased was asleep in the night shift.

1st June 1897	4 P.M.	Upper Ledo	Ledo	Do.	Do.	Pemboria	23	Do.	Do.	STONE.—The stone that fell was from the parting between the seams.
29th April 1897	6 P.M.	Baraboni	Baraboni, Ranigunj Sub-division.	Coal	Baraboni Coal Co., Ltd.	Bhaja Majie	40 or 45	Coal cutter.	Fall of coal from working face.	He was killed on the spot by a big lump of coal falling on him whilst he was working at the place. It was reported as being due to his own carelessness.
15th May 1897	9-30 P.M.	Kurhurbaree Colliery, E. I. Ry.	Giridih Sub-division, Hazaribagh District.	Do.	East Indian Railway Co.	Uttim Miah	30	Do.	Do.	COAL.—The face of the gallery where the accident happened was fenced off as dangerous, but the deceased got over the fence and began working under an overhanging piece of coal that was unsafe owing to a slip; this coal fell on him and caused a compound fracture of the spine. I inspected the place, and believe the accident was brought about by either gross carelessness or ignorance. I made a representation to the Superintendent of the colliery, which may do much to prevent officials allowing unsafe parts to remain, even though they may be fenced off.
15th June 1897	1 P.M.	Upper Ledo	Ledo Lakhimpur, Assam.	Do.	The Assam Railways and Trading Co., Ltd.	1 Male and 2 Females. Bhadai (m) Balasia (f) Karamoti (f)	32 28 35	Do. Filler Do.	Ditto	COAL.—This accident was reported as due to a "Fall of coal in working opening (underground)." The cause being given also as a "Large sudden fall of coal due to disturbance and upset in strata caused by earthquake of 12th June."

Fatal Accidents during the year 1897 from (3)—Falls of Coal from working face.

FALLS IN MINE—concl'd.

Fatal Accidents during the year 1897 from (3)—Falls of coal from working face—cont'd.

1	2	3	4	5	6	7	8	9	10	11
Date of accident.	Hour of day or night.	Name of the mine.	Situation of mine.	Description of mine or name of mineral wrought.	Name of the owner or Company.	Name and number of persons killed, and whether male or female.	Reputed ages.	Occupation.	Cause of accident according to terms detailed on Form 25, and whether above or below ground.	REMARKS on cause of death.
19th August 1897	5-30 P.M.	Salanpore, No. 4 Incline A.	Salanpore, Ranigunj Sub-division.	Coal	Borrea Coal Co., Ltd.	Male. Kissen Majhi	34	Coal cutter.	Falls in mine. Fall of coal from working face.	COAL.—A heavy piece of coal fell on this man and crushed him to death.
30th November 1897	8 A.M.	Upper Colliery, Tikak.	Lakhimpur	Do.	Assam Railways and Trading Co., Ltd.	Female. Lagni	25	Coal carrier.	Do.	COAL.—There is a little uncertainty as to whether this accident should be placed under this division for column 10. The notice stated that the cause was a "Fall of coal in working place underground. Deceased was just going to commence work for the day. The coal was dislodged by a 'bump' in the strata." The insertion of the word 'bump' means a great deal, about some of which I am making enquiries.
8th July 1897	7 P.M.	Tikak	Tikak	Do.	Do.	Male. Nongail	30	Coal cutter.	Do.	COAL.—Due to a fall of coal whilst taking out a pillar.
24th July 1897	2-30 A.M.	Ledo Valley	Ledo	Do.	Do.	Male. Pahalman	27	Filler	Do.	COAL.—The fall was reported as due to a 'bump' in the strata.

IN AND AT SHAFTS.

Fatal Accidents during 1897 from (6)—Whilst ascending or descending by machinery.

10th July 1897	7 a.m.	Lord Shaft, Wondalli.	Harris Wondalli.	Wondalli, Raichur District, Gulbarga Division.	Gold.	The Wondalli (Deccan) Gold Mines, Ltd.	Male. Veeraragha Vulu.	...	Blaster	In and at shafts. Whist ascending or descending by machinery.	The deceased fell from a bucket whilst being hoisted below ground. Reported as being due to his own carelessness.
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Fatal Accidents during the year 1897 from (7)—Falling into shaft from the surface.

18th November 1897	11 P.M.	Sink of No. 3 shaft, Wondalli.	Wondalli Rai-chur District, Gulbarga Division.	Gold.	The Wondalli (Deccan) Gold Mines, Ltd.	Male.	V. Bob	...	Drillman	In and at shafts. Falling into shaft from the surface.	Deceased was reported to have fallen down the shaft, about 395 feet, whilst in a state of intoxication.
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Fatal Accidents during the year 1897 from (8)—Falling from a part of the way down.

21st September 1897	9-30 A.M.	No. 3 pit, Umaria Colliery.	Umaria	Umaria C. P.	Coal	Government	Male.	Bayragimerah	14	Head under-looker's pit boy.	In and at shafts. Falling from a part of the way down.	Instead of going to the pit bottom, the boy went to the mouth of No. 3 seam and had the cage stopped there for him; he is supposed to have slipped whilst getting out of the cage and into the mouth of the shaft, 17 feet, and passed through an aperture in the scaffolding and fell into the sump. The No. 3 mouth was said to be fenced, and the boy's action there was a breach of Rule 62.
11th October 1897	11 P.M.	South main lode, Wondalli.	Wondalli, Rai-chur District, Gulbarga Division, Hyderabad (Deccan).	Wondalli, Rai-chur District, Gulbarga Division, Hyderabad (Deccan).	Gold	The Wondalli (Deccan) Gold Mines, Ltd.	Male.	Hanumah	...	Shaft cooly	Do.	The deceased fell into a winze from a height of about 30 feet. The accident was reported as due to his own carelessness.

IN AND AT SHAFTS—contd.

Fatal Accidents during the year 1897 from (8)—Falling from a part of the way down—contd.

1	2	3	4	5	6	7	8	9	10	11
Date of accident.	Hour of day or night.	Name of the mine.	Situation of mine.	Description of mine or name of mineral wrought.	Name of the owner or Company.	Names and number of the persons killed, and whether male or female.	Reputed ages.	Occupation.	Cause of accident according to terms detailed on Form 25, and whether above or below ground.	REMARKS on cause of death.
19th November 1897	4 A.M.	Sink, No 3 shaft, Wondalli,	Wondalli, Raichur District, Gulbarga Division, Hyderabad (Deccan).	Gold.	The Wondalli (Deccan) Gold Mines, Ltd.	Male. Jalaly Thippannah.	...	Shaft cooly	In and at shafts. Falling from a part of the way down.	The deceased appears to have fallen into the sink, from a height of about 63 feet, immediately after some shots had been lighted in the sink, and the body was much mutilated from the effects of the blasts as well as from the fall.
17th May 1897	9-30 A. M.	No. 13 pit, Singareni Colliery.	Yellandu, Hyderabad (Deccan).	Coal.	The Hyderabad (Deccan) Co., Ltd.	Male. Narayanasawmy	20	Cooly	Ditto.	Fell out of the cage whilst ascending the pit.

MISCELLANEOUS BELOW GROUND.

Fatal Accidents during the year 1897 from (12)—Explosions of firedamp.

4th September 1897	9 P.M.	Pit No. 1, Deshurgarh.	Deshurgarh, Raichur District, Sub-division.	Coal.	Equitable Coal Co., Ltd.	3 Males. Saran Bin Gokul Gopi Batar Bin	38 40 34	Signalman. Dustman. Fireman (surface boiler stoker).	Miscellaneous below ground Explosion of firedamp.	It was reported that the men had stealthily gone into the gallery in which safety lamps were used by the ordinary workmen; they having ordinary lamps for use, and with the object of loading dust coal for extra earning. I went to inspect the place of accident, but found very little firedamp in it. It appears from enquiries that the deceased men lived for about 9 hours, and made statements to the effect that they went down the mine with a chaprasi's glass-lamp to find a measuring tape that the Babu

had lost near the dip-hole at the shaft bottom. It also appears that the Dabu was near the pit top at the time, but denies having seen them down or having any knowledge of it. The Manager said there were written orders that only safety lamps were to be allowed. Workmen were said to have been working in the place of accident up to about an hour before it happened, and that firedamp had not been seen in that place before the accident. But I noticed that there was firedamp in workings adjacent to the place of accident. There appears to be a great deal of mystery attached to this case for the sole object of screening from blame. The accident should form the subject for many important lessons, but I am greatly afraid that, as a rule, the lessons will only be learned slowly, and by the force brought about by the loss of lives that should be saved. A few of the lessons I refer to are:—The dangerous nature of a very small quantity of firedamp, dangers of using mixed lights (naked lights and safety lamps), the dangers attending ignorance of the properties of firedamp, etc.

Returned as a "Sudden outburst."

13th March 1897	8 A.M.	Ledo Valley	Ledo	Coal	Assam Railways and Trading Co., Ltd.	Male. Kollai	29	Coal cutter	Explosion of firedamp.	
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Fatal Accidents during the year 1897 from (13)—Suffocation by gases.

14th May 1897	10-30 A.M.	Letkokbin	Shwebo District, Upper Burma.	Coal.	The Burma Coal Co., Ltd.	Male. Maung Hpo Nee, son of Moung Iso from Abeshys village.	37	Coal cutter.	Miscellaneous below ground. Suffocation by gases.	The deceased pulled down a fence and entered an old goaf gallery, for reasons that can only be guessed, and was suffocated by carbonic acid gas. The Sub-Manager went to the place and recovered the body as soon as the accident was reported to him. It appears that the gallery was connected with an old goaf that sometimes gives off noxious gas; also that it was fenced off to prevent any one inadvertently entering it. I made some enquiries by letter with reference to the appearance of noxious gas.
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MISCELLANEOUS BELOW GROUND—*contd.*

Fatal accidents during the year 1897 from (14)—By explosives.

1	2	3	4	5	6	7	8	9	10	11
Date of accident.	Hour of day or night.	Name of the mine.	Situation of mine.	Description of mine or name of mineral wrought.	Name of owner or Company.	Names and number of persons killed, and whether male or female.	Reported ages.	Occupation.	Cause of accident according to terms detailed on Form 25, and whether above or below ground.	REMARKS on cause of death.
25th September 1897	5-15 A.M.	Well shaft, Wondalli.	Wondalli, Raichur District, Gulburga Division.	Gold	The Wondalli (Deccan) Gold Mines, Ltd.	<i>Male.</i> Mukthal Thinnapp.	...	Shaft cooly.	Miscellaneous below ground. By explosives.	He was instantaneously killed by fracture of skull, ribs, and thigh, caused by the explosion of a mis-fired shot, the existence of which was unknown to the deceased.
11th January 1897	10-30 A.M.	Boodini	South-west of Raichur.	Do.	Hyderabad (Deccan) Co.	<i>Female.</i> Zurawah	14	Surface cooly	Do.	Reported as due to the "Fall of a stray stone by blast." The head and the face were most injured.
18th February 1897	4 P.M.	Do.	Do.	Do.	Do.	<i>Male.</i> Kohapah	32	Do.	Do.	The deceased caused the shot to go off, that killed him, by putting a drill into the shot-hole after the blaster had put dynamite into it.
28th July 1897	1 A.M.	Do.	Do.	Do.	Do.	<i>Male.</i> Beerankully	34	Contractor's cooly.	Do.	Reported as due to the deceased "boring a hole about 6 inches from an old one in which dynamite is supposed to have been left after previous blast."
10th May 1897	11 A.M.	No. 15 pit, Singareni Colliery.	Vellandu, Hyderabad (Deccan).	Coal	The Hyderabad (Deccan) Co., Ltd.	<i>Male.</i> Maddooladanoo	35	Filler	Do.	The report merely showed that the man received bad injuries, without clearly giving the cause.

Fatal accidents during the year 1897 from (15)—Irruptions of water, and falling into water.

5th September 1897	2 P.M.	No. 3 Pit, A, Salanpore Collieries.	Salanpore, Ranigunj Sub-division.	Coal.	Borrea Coal Co., Ltd.	Pitam Mochi.	37	Cooly	Miscellaneous below ground. Falling into water.	By drowning whilst assisting two other men to lower the pump-pipes in the shaft, the pipes caught, and broke off a piece of trap rock from the side of the pit, this piece of rock struck deceased on the head and knocked him off the scaffold into the dip hole. The two men left him in the water and went to give information to the officials on the surface. I inspected the place and made enquiries.
14th "	About 7 P.M.	No. 6, Deshergarh.	Deshergarh, Ranigunj Sub-division.	Do.	Equitable Coal Co., Ltd.	Birbol Kole.	25	Coal cutter	Do.	This accident was reported as follows:—"Was found drowned in a gallery of water at a place where he should not be. It was apparently a case of suicide."
12th February 1897	10 P.M.	No. 6 Pit, Singareni Colliery.	Yellandu, Hyderabad (Deccan.)	Do.	The Hyderabad, (Deccan) Co., Ltd.	Ramasawamy.	19	Punkah wallah.	Do.	Reported as drowned by falling into No. 6 pit.
13th May 1897	4 P.M.	Batten Singareni Colliery.	Do.	Do.	Do.	Gungadeen.	20	Sinker	Do.	Drowned in the sump of Batten pit.

Fatal accidents during the year 1897 from (16)—On inclined and engine planes.

23rd April 1897	5 P.M.	Dhadka	Assansol Thana, Ranigunj Sub-division.	Coal.	New Birbhum Coal Co.	Sundi Bamini.	10 or 11	Labourer	Miscellaneous below ground. On inclined and engine planes.	This accident happened on an engine plane. The girl, with her parents, stood on the side of the incline while the train of five tubs passed; when the train had become above them a drawbar-hook of one of the tubs broke, and the run-away tubs caught the girl, she having begun to run down the incline in fear.
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MISCELLANEOUS BELOW GROUND—contd.

Fatal accidents during the year 1897 from (16)—On inclined and engine planes—contd.

1	2	3	4	5	6	7	8	9	10	11
Date of accident.	Hour of day or night.	Name of the mine.	Situation of mine.	Description of mine or name of mineral wrought.	Name of the owner or Company.	Names and number of the persons killed, and whether male or female.	Reputed ages.	Occupation.	Cause of accident according to terms detailed on Form 25, and whether above or below ground.	REMARKS on cause of death.
18th May 1897 .	6 P.M.	Sanctoria .	Ranigunj Sub-division, Burdwan District.	Coal .	Bengal Coal Co., Ltd.	Female. Amrita Bowrini	40	Cleaner of under ground galleries.	Miscellaneous below ground. On inclined and engine planes.	Fracture of skull through tubs breaking away. I inspected and investigated this accident and found that the state of things were not satisfactory, but might readily lead to other accidents. I wrote to the Superintendent of the Company, pointed out the defects, and said "I shall be very glad to know what you may have to say in the matter in the hope that you may see your way to put things right." No reply to this has been received.
19th May 1897 .	9 P.M. (Dark night.)	Sanctoria .	Do.	Do. .	Do.	Male. Rakhal Chandra Kum: r.	30	Water bailer. Below ground.	Do. .	Broken leg, and internal injuries, caused by tubs breaking away. [The whole of the above remarks on the last accident apply also, and equally, to this.]
23rd September 1897 .	3 A.M. (nine hours on night shift.)	No. 5 incline, Kendradih Colliery.	Do.	Do. .	East Indian Coal Co., Ltd.	Female. Rani Bhuiah .	30	Coal carrier.	Do. .	A coupling link "gave way" while a train of empty tubs was being lowered, and 5 of the tubs ran away and killed the deceased who had come out of one of the side galleries through the alarm.

1st December 1897	7 P.M.	Sejooah incline.	No. 7	Jherriah, Govindpur Sub-division, Manbhum District.	Do.	Messrs. Finlay Muir and Co.	Male. Subasar.	20	Trolley man	Do.	"The deceased was knocked down whilst riding a coal tub when the tubs were being hauled up an inclined bank. Riding tubs underground is against all orders, and the deceased was forbidden to do so by the Sirdar at the time of accident."
6th January 1897	6-15 A.M.	No. 1 incline, Singareni Colliery.		Yellandu, Hyderabad State (Deccan).	Do.	The Hyderabad (Deccan) Co., Ltd.	Male. Abbigadoo	13	Door-keeper	Do.	Reported to have been injured by lorries in December 1896, and died on the 6th January 1897.
26th August 1897	1 A.M.	No. 15 pit		Do.	Do.	Do.	Female. Butchi	28	Filler	Do.	Head skull fractured by being struck by a tub.
12th July 1897	4 P.M.	Tikak		Tikak	Do.	Assam Railways and Trading Co., Ltd.	Male. Gangadhar	26	Bakesman	Do.	Run over by a run-away tub.

Fatal accidents during the year 1897 from (19)—By other causes.

24th April 1897	About 12 noon	Keshubgunj Colliery.		Keshubgunj, Asansol Thana, Raniganj Sub-division.	Coal	Standard Coal Company.	Female. Achee Majhan	12	Coal carrier.	Miscellaneous below ground. By other causes.	Whilst carrying a tokri full of coal up some brick steps, at the bottom of the incline leading to and from the mine, she slipped from the side edge of the top step and fell 7 feet, thus receiving injuries that caused her death. I inspected the place and pointed out a simple way of remedying the defect, and the manager promised to have the place put right at once.
23rd July 1897	2-30 P.M.	Warora Colliery		Warora, Central Provinces.	Coal and fire-clay.	Government	Male. Dayal (Hindu)	30	Cooly	Do.	The man was killed by being struck on the chest by a piece of wood used for packing. The packing was knocked down by a prop that had been drawn out by the man's mates. He died on the following day.

ON SURFACE.

Fatal Accidents during the year 1897 from (22)—On tramways and railways belonging to mine.

1	2	3	4	5	6	7	8	9	10	11
Date of accident.	Hour of day or night.	Name of the mine.	Situation of mine.	Description of mine or name of mineral wrought.	Name of the owner or Company.	Names and numbers of the persons killed and whether male or female.	Reputed ages.	Occupation.	Cause of accident according to terms detailed on Form 25 and whether above or below ground.	REMARKS on cause of death.
21st December 1897	4-30 P.M.	Dandot Colliery	Dandot, Jhelum Dist., Punjab.	Coal	N. W. Railway.	Male. Mehtah Shah .	45	Mail runner, Postal Dept.	On surface. By tramways and railways belonging to mine.	It happened on the middle surface incline. The deceased was trespassing on the line, and was crushed by being run over by a loaded coal train.
28th August 1897	7 A.M.	Ledo Valley	Ledo . .	Do.	Assam Railways and Trading Co., Ltd.	Male. Bhagirath .	23	Coal filler .	Do. . .	Run over by a tub as he was going to his work.

Fatal accidents during the year 1897 from (23)—Miscellaneous.

10th April 1897	5 P.M.	Mohpani Colliery.	Mohpani, Central Provinces.	Coal	Nerbudda Coal and Iron Co., Ltd.	Female. Lachania .	50	Mutt carrier.	On surface. Miscellaneous.	This accident happened in the "Mutt quarry." The deceased loosened a large stone by taking away the mat from around it, and the stone fell down and upon her causing such injuries to her thigh, collar-bone and internally, that she died in a few days after.
29th April 1897	4 P.M.	Busswuswa	Koderma Protected Forests.	Mica	C. A. MacDonald & Co.	Male. Lalit Koari .	35	Miner .	Do.	The deceased was engaged working in the passage when the slip suddenly took place and buried him. I inspected the place and found that the side-rock came off to a very slippery facing or parting; this ought to have been noticed as running behind the rock and greatly increasing the insecurity. This accident should have been avoided.

25th June 1897	3 P.M.	Umaria Colliery	Umaria, Rewah State, Central Provinces.	Coal	Government	Jethua	Male.	40	Beldar cooly.	Do.	This accident was caused by the sudden falling of the upper portion of a kutchha pukka stone wall that was supporting the spoil bank at No. 3 pit. It appears to have become loosened by the recent heavy rain. The deceased was working with others near the foot of the wall, and before he could escape he was struck down by the falling materials and instantaneously killed.
18th August 1897	8-30 A.M.	Garbham	Gajapatinagar Taluk, Vizagapatam District.	Manganese ore.	Vizianagram Mining Co., Ld.	Avala mah.	Female.	30 to 40	Cooly	Do.	The deceased was struck by building stone rolling down hill from the quarry; this fractured her neck and caused instantaneous death.
18th October 1897	4-30 P.M.	Petiani Colliery.	Barakar, Burdwan District.	Coal	Agents, Mylne & Co., Shoshi Bhusan Raha, Proprietor.	Mungli Mehas Kumy Bowri Pana Moghan Pallymallick.	4 Females.	14 16 13 30	Rubble screeners.	Do.	This accident was reported as due to a "Fall of roof causing a strong current of air."
12th July 1897	12 noon	Namdang	Namdang Coal.	Do.	Assam Railways and Trading Co., Ld.	Sukdeo	Male.	24	Coal cutter (coal quarrier).	Do.	Fall of coal at mine entrance.
4th August 1897	3-30 P.M.	Do.	Do.	Do.	Do.	Balla	Male.	26	Rock cutter	Do.	Fall of coal on the tramway.

16.—NUMBER OF PERSONS KILLED BY MINING ACCIDENTS IN INDIA DURING THE YEAR 1897.

India.

No.	STATE, PROVINCE, DIVISION, DISTRICT, OR SUB-DIVISION.	Mineral.	FALLS IN MINE.				IN AND AT SHAFTS.										MISCELLANEOUS BELOW GROUND.										ON SURFACE.					GROSS TOTALS.
			Fall of roof—stone, or coal.	Fall of sides—stone, or coal.	Fall of coal from working face.	Total falls in mine.	Overwinding.	Ropes and chains breaking.	Whilst ascending or descending by machinery.	Falling into shaft from the surface.	Falling from a part of the way down.	Things falling from surface.	Things falling from a part of the way down.	Miscellaneous.	Total in and at shafts.	Explosion of fire- damp.	Suffocation by gases.	By explosives.	Irregularities of water, and falling into water.	On inclined and engine planes.	By rams or tubs, but not on inclined or engine planes.	By machinery.	By other causes.	Total miscellaneous below ground.	Total below ground.	By machinery.	Boilers, or steam- pipes bursting.	On railways or tramways belong- ing to mine.	Miscellaneous.	Total on surface.		
1	BENGAL. <i>Burdwan Division.</i> Burdwan District, Ranigunj Sub-division.	Coal	2	..	2	4	..	..	..	..	..	..	..	..	3	..	..	..	2	4	..	..	1	10	14	..	..	..	4	4	18	
2	<i>Chota-Nagpur Division.</i> Hazaribagh District, Giridih Sub-division.	"	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	
3	<i>Chota-Nagpur Division.</i> Manbhum District, Govindpur Sub-division.	"	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1	1	..	..	..	..	..	1	
4	CENTRAL PROVINCES. Mohpani .. <i>Chanda District.</i>	"	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	
5	Warora ..	"	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	..	..	..	..	..	1	
6	<i>Remah State.</i> Umaria ..	"	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	2	

NUMBER OF PERSONS KILLED BY MINING ACCIDENTS IN INDIA DURING THE YEAR 1897—*contd.* India.

No.	STATE, PROVINCE, DIVISION, DISTRICT, OR SUB-DIVISION.	Mineral.	FALLS IN MINE.				IN AND AT SHAFTS.										MISCELLANEOUS BELOW GROUND.										ON SURFACE.					GROSS TOTALS.
			Fall of roof—stone, or coal.	Fall of sides—stone, or coal.	Fall of coal from working face.	Totals falls in mine.	Overwinding.	Ropes and chains breaking.	Whist ascending or descending by machinery.	Falling into shaft from the surface.	Falling from a part of the way down.	Things falling from surface.	Things falling from a part of the way down.	Miscellaneous.	Total in and at shafts.	Explosion of fire- damp.	Suffocation by gases.	By explosives.	Irruptions of water and falling into water.	On inclined and engine planes.	By trams or tubs, but not on inclined or engine planes.	By machinery.	By other causes.	Total miscellaneous below ground.	Total below ground.	By machinery.	Boilers or steam- pipes bursting.	On railways, or tramways belong- ing to mine.	Miscellaneous.	Total on surface.		
18	Patna Division. Gya District, Nawada Sub-division.	Mica.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
MICA MINES TOTALS.			..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	
19	PUNJAB, Jhelum District .	Salt .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
20	Bannu District .	" .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
SALT MINES TOTALS.			..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
21	RAJPUTANA, Ulwar State .	Stone .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
BURMA. Northern Division.			..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
22	Ruby Mines District .	Rubies, sap- phires and spincis.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
GROSS TOTALS .			26	..	9	35	..	..	1	1	4	..	..	..	6	4	1	5	4	8	..	..	2	24	65	..	..	..	2	10	12	77

17.—SUMMARY OF ACCIDENTS DURING 1897 and 1896.

India.

Number of males and females killed, classified as to causes.

No.	Causes of accidents in terms of "Form 25," and whether above or below ground.	DEATHS, 1897.			DEATHS, 1896.			
		Males.	Females.	TOTALS.	Males.	Females.	TOTALS.	
	I.—Falls in Mine.							
1	Fall of roof—stone, or coal	23	3	26	7	5	12	
2	Fall of sides—stone, or coal	...	...	...	11	...	11	
3	Fall of coal from working face	6	3	9	2	...	2	
	TOTALS FROM FALLS IN MINE	29	6	35	20	5	25	Falls in mine.
	II.—In and at Shafts.							
4	Overwinding	...	...	...	...	...	...	
5	Ropes and chains breaking	...	...	...	...	...	...	
6	Whilst ascending or descending by machinery .	1	...	1	...	1	1	
7	Falling into shaft from the surface	1	...	1	4	...	4	
8	Falling from a part of the way down	4	...	4	...	...	...	
9	Things falling from surface	...	...	...	...	...	...	
10	Things falling from a part of the way down . .	...	...	...	1	...	1	
11	Miscellaneous	...	...	...	...	...	...	
	TOTALS IN AND AT SHAFTS	6	..	6	5	1	6	In and at shafts.
	III.—Miscellaneous Below ground.							
12	Explosion of fire-damp	4	...	4	3	...	3	
13	Suffocation by gases	1	...	1	1	...	1	
14	By explosives	4	1	5	3	...	3	
15	Irruptions of water, and falling into water . .	4	...	4	7	...	7	
16	On inclined and engine planes	4	4	8	2	1	3	
17	By trams or tubs, but not on inclined or engine planes	...	...	...	5	2	7	

Falls in mine.

In and at shafts.

SUMMARY OF ACCIDENTS DURING 1897 and 1896—*contd.*

Number of males and females killed, classified as to causes—contd.

No.	Causes of accidents in terms of "Form 25," and whether above or below ground.	DEATHS, 1897.			DEATHS, 1896.		
		Males.	Females.	TOTALS.	Males.	Females.	TOTALS.
	III.—Miscellaneous Below Ground—contd.						
18	By machinery . . .	...	...	...	...	...	
19	By other causes . . .	1	1	2	2	...	2
	TOTALS MISCELLANEOUS BELOW GROUND . . .	18	6	24	23	3	26
	TOTALS BELOW GROUND . . .	53	12	65	48	9	57
	IV.—On surface.						
20	By machinery . . .	...	...	...	...	...	
21	Boilers, or steam pipes bursting . . .	...	...	...	...	...	
22	On railways, or tramways belonging to mine . . .	2	...	2	5	...	5
23	Miscellaneous . . .	4	6	10	4	...	4
	TOTALS ON SURFACE . . .	6	6	12	9	...	9
	GROSS TOTALS BELOW AND ABOVE GROUND . . .	59	18	77	57	9	66
							Miscellaneous below ground. Totals below ground, Totals on surface, Gross totals.

18.—Accidental deaths in each district for each mineral, for 1897.

Deaths caused by accidents at Mines in India during the year 1897, classified for districts and for minerals.

No.	DISTRICTS, ETC.	Description of mine.	BELOW GROUND.		ABOVE GROUND.		Total deaths.	Gross total of deaths for each kind of mine.	REMARKS.
			Males deaths.	Females deaths.	Males deaths.	Females deaths.			
	BENGAL.								
	<i>Burdwan Division.</i>								
1	Burdwan District, Rani- gunj Sub-division	Coal .	10	4	...	4	18		Returns of acci- dents were not received for those districts left blank.
	<i>Chota-Nagpur Division.</i>								
2	Hazaribagh District, Giridih Sub-division	" .	1	...	...	...	1		
3	Manbhum District, Govindpur Sub-division	" .	1	...	...	...	1		
								20	

Accidental deaths in each district for each mineral, for 1897—*contd.*Deaths caused by accidents at Mines in India during the year 1897, classified for districts and for minerals—*contd.*

No.	DISTRICTS, ETC.	Description of mine.	BELOW GROUND.		ABOVE GROUND.		Total deaths.	Gross total of deaths for each kind of mine.	REMARKS.
			Males deaths.	Females deaths.	Males deaths.	Females deaths.			
	CENTRAL PROVINCES.								
	Chanda District.								
4	(Warora Colliery) . . .	Coal .	1	...	...	...	1		Returns of accidents were not received for those districts left blank.
	Narsingpur District.								
5	(Mohpani Colliery) . . .	" .	...	...	...	1	1		
	Rewah State.								
6	(Umaria)	" .	1	...	1	...	2	4	
	PUNJAB.								
7	Jhelum District . . .	" .	1	...	1	...	2	2	
	BALUCHISTAN.								
8	Baluchistan District . .	" .	1	...	...	...	1	1	
	HYDERABAD (DECCAN).								
9	Yellandu (Singareni) . .	" .	6	1	...	...	7	7	
	BURMA (UPPER).								
10	Central Division . . .	" .	1	...	...	...	1	1	
	ASSAM.								
11	Ledo Valley and Tikak . .	" .	10	5	...	...	15	15	
12	Cherrapunji	" .	17	...	...	...	17	17	
							Coal .	67	
	MADRAS.								
13	North Arcot District . .	Gold .	...	...	...	...	...	...	
14	Vizagapatam District . .	Manganese ore.	...	...	...	1	Manganese ore.	1	
	MYSORE STATE.								
15	Hassan District	Gold .	...	...	...	...	...		
	HYDERABAD (DECCAN).								
16	Raichur District	" .	7	1	...	...	Gold 8 .	8	
	BENGAL.								
	Chota-Nagpur Division.								
17	Hazaribagh District, Giridih Sub-division . .	Mica .	...	...	1	...	1	1	
	Patna Division.								
18	Gya District, Nawada Sub-division	" .	...	...	...	...	...		
							Mica .	1	

Accidental deaths in each district for each mineral, for 1897—*contd.*

Deaths caused by accidents at Mines in India during the year 1897, classified for districts and for minerals—concl'd.

No.	DISTRICTS, ETC.	Description of mine.	BELOW GROUND.		ABOVE GROUND.		Total deaths.	Gross total of deaths for each kind of mine.	REMARKS.
			Males deaths.	Females deaths.	Males deaths.	Females deaths.			
	PUNJAB.								
19	Jhelum District . .	Salt .	...	...	...	...	...	...	
20	Bannu District . .	" .	...	...	...	...	...	...	
	RAJPUTANA.								
21	Ulwar State . . .	Stone .	...	...	...	...	...	...	
	BURMA (UPPER). <i>Northern Division.</i>								
22	Ruby Mines District .	Rubies, sapphires and spinels.	...	...	...	...	...	...	
			57	11	3	6			
			68		9		Total .	77	

19.—Remarks on the fatal accidents at Indian mines during the year 1897.

Some of the most important facts worth repeating, and observations that may be noted from the foregoing figures and particulars, are as follows:—

1. The total number of fatal *accidents*, excluding those at the Mysore mines, amounted to 54.

2. The total number of lives lost was 77.

3. The number of lives lost below ground was 65, and above ground 12. Total 77.

	Below ground.	Above ground.	TOTALS.
Males	52	6	59
Females	12	6	18
TOTALS	65	12	77

4. The principal source of accidents was falls of roof; these caused 26 deaths or over 34 per cent. of the total deaths, and these 26 deaths were caused by 10 separate accidents. Now, in connection with this, it should be particularly remembered that the duty of keeping the roof of mines constantly secure and safe belongs, as a rule, to mine owners, and mine officials, and especially is this the case in India; it follows, therefore, that one's thoughts naturally and at once turn to these officials and their duties when accidents happen from falls of roof. I wish to particularly press this observation on the attention of mine officials, because the Indian miner depends on the mine official to see to and keep the

roof of his working place safe. The case is quite different to that prevailing in most parts of England, where the workmen see to the security of, and make safe, the roof of their own working; and this does not depend on their own sense of safety, but they are compelled by the law to either leave an insecure part of the mine or secure it; and, in most parts of England, it is the custom for the workmen to timber and otherwise secure their own working-places.

5. There were 9 deaths caused by falls of coal from the working faces where the workmen (miners or coal cutters) work at and loosen the coal.

These accidents are quite different from those last referred to, because it is the duty of the workman to see that the coal at which he is actually working is kept safe, and to safeguard himself, and all those about him, from the dangers of the coal that has become unsafe by his own work at it. It follows, therefore, that this class of accidents greatly depends on the care or carelessness of the workmen themselves. This also gives cause for much regret that 3 out of the 9 persons killed were females, because females depend much, and in these cases almost solely, on the males for their safety.

6. It may well be noted that 4 lives were lost by explosions of firedamp and 1 from suffocation by noxious gas.

These correspond exactly with the numbers for the year 1896.

This is a source of accidents about which there is great uncertainty, very great ignorance prevailing in India, and it is a source that need not cause surprise if it develops in leaps and bounds. Firedamp as a very powerful source of accidents is not yet being given its proper place in Indian mining, though in fact it is hardly yet within the range of practical politics, if that term can be applied to mining. But I warn all mining people against thinking that Indian coals do not give off firedamp, and against carrying out that work of mine ventilation, lighting, and shot-firing on the same supposition. Indian coals do give off firedamp, and the gas forms explosive mixtures, and these explode and kill men as often as the circumstances are favourable for it; and there is very little indeed done to avoid or prevent such accidents in Indian mines. Under the present circumstances it is very difficult for one to give *practical* effect to the above warning; the accidental warnings have not yet struck home as they ought; but almost all the accidents from firedamp that I have known in India might easily have been avoided by a very little of the most ordinary care. While, then, I hope to do all in my power to avert such accidents, what may we expect when the state of Indian mining becomes favourable for large accidents happening unless care is taken to avoid them out of all comparison with the amount of care at present exercised. Indian mines are more and more approaching the condition when special and great care will be required; deeper mines; more extensive workings; more pent up and escaping firedamp; more intricate ventilation, and greater quantity of air required; more dependence on ventilating machinery, doors, stoppings, etc.; and the workmen depending more on each other for the general safety of the mines. I think I need not say more in proof of the very great importance of this subject—accidents from explosion of firedamp—but ask all mining officials to give it the attention its importance and seriousness requires.

7. Although a male or female cooly with a *tokri* is most often the recognised means of coal haulage in India, trams or tubs, and inclined and engine planes, were responsible for 8 deaths, and there was more than that number in the year 1896. I must speak plainly about these and say that these accidents are most

often due to carelessness, either of the person killed or of the officials who have charge of the haulage or of both, and, consequently, the number of such accidents is greater than it ought to be.

Females were as great victims from this cause as the males this year.

8. The accidental deaths in relation to the months of the year were—

January .	3.	April .	7.	July .	8.	October	5.
February .	3.	May .	8.	August .	5.	November	4.
March .	2.	June .	22.	September .	8.	December	2.

9. Accidents during the day, and during the night.

	DAY.		NIGHT.	
	From 6 A. M. to 12 noon.	From 12 noon to 6 P. M.	From 6 P. M. to 12 mid-night.	From 12 mid-night to 6 A. M.
	17	18	9	10

This shows that there were about as many accidents in the first half as in the second half of the day, and in the first half as in the second half of the night, the second halves having, slightly, the greatest numbers; but that there were nearly twice as many accidents in the day as there was in the night. By far the greatest number of people are employed in the day time, and the bulk of the work is done between the hours of 6 A. M. and 6 P. M. But, on the other hand, there is probably more supervision, as compared with the number of persons employed, in the day time than in the night time.

10. The number of Mining Companies at whose mines accidents happened. Twenty-two separate mining companies contributed to the 54 separate accidents and 77 deaths. There was 1 death at each of 12 companies' mines; and at 2 companies' mines there were 2 deaths—

„ 2	„	„	„	„	3	„
„ 2	„	„	„	„	4	„
„ 1	„	„	„	„	5	„
„ 1	„	„	„	„	10	„
„ 1	„	„	„	„	15	„
„ 1	„	„	„	„	17	„

It will also be noted that the bulk of the accidents happened at 3 companies' mines. At the mine in Assam owned by the Government, and worked by the Khasias, there were 17 men killed by falling roof on the 12th of June, and caused by the terrific earthquake that then happened. At the mine, also in Assam, owned by the Assam Railways and Trading Company, Limited, there were 15 deaths; 12 of which were caused by falling stone and coal; 3 of these happened on the 15th June, at one time and place, and reported as a result of the earthquake that happened on the 12th. The frequent falls of stone and coal are also said to be due to "bumps" about which I hope to extend the inquiries already begun.

At the coal and gold mines of the Hyderabad (Deccan) Company, there were 8 males killed and 2 females. The causes were various, 4 by explosives and blasting, 2 drowned, 2 run over, 1 fell out of the cage whilst ascending, and 1 by fall of roof-stone. Seven of these were at the Yellandu coal mine, and the other 3 at the gold mine.

11. As to the kinds of mines at which the accidents happened, coal mines were responsible for 67 deaths; 8 persons were killed at gold mines, not including the Kolar mines in Mysore; and 1 each at mica and manganese mines, respectively.

12. Of the total deaths, 38 of the persons killed were grown up males, 15 were grown up females, 2 were females about 12 years of age, and the ages of 22 were not given.

13. A short summary of the causes of the accidents—

Causes of the accidents.	Number of accidents.	Persons killed.
Below ground—		
1. Fall of roof { stone	6	22
. { coal	4	4 } 26
3. Fall of coal from working face	7	9
6. Whilst ascending or descending by machinery	1	1
7. Falling into shaft from surface	1	1
8. Falling from a part of the way down	4	4
12. Explosions of firedamp	2	4
13. Suffocation by gases	1	1
14. By explosives	5	5
15. Irruptions of water, and falling into water	4	4
16. On inclined and engine planes	8	8
19. By other causes	2	2
On surface—		
21. By tramways and railways belonging to the mine	2	2
22. Miscellaneous	7	10
	54	77

14. Some general observations. On going over the notices of accidents from the various parts of India it was curious to note, from the remarks made on the causes of the accidents, that the total number of deaths appear to admit of the following general classifications:—

18 of the deaths appeared to be unavoidable.

10 were stated to be due to deceased's own carelessness.

3 due, apparently, to the fault of other workmen.

6, at least, might have been avoided by officials' diligence.

2, at least, were purely accidental.

31 were sudden deaths,—killed instantaneously.

7 lived for some days after the accident.

20 were said to be due to the earthquake of the 12th June.

1 man was said to have been asleep at the time of the accident.

And 1 man fell down a shaft whilst intoxicated.

In making the above classifications no attempt was made to make the numbers compare with any totals, but each case was considered separately and noted on its own merits as compared with the information available.

15. I have good reason for believing that the number of fatalities at Indian mines in 1897 was greater than the 54 separate accidents and 77 deaths as herein shown.

For some unfortunate reason, the members of the Indian Mining Association, so I have been told on good authority, gave orders, in the early part of 1897, that notices were no longer to be sent to me of any fatal accidents that might happen at their mines. The firm that was most instrumental in bringing about the cessation of fatal accident notices has, I am glad to say, changed for the better and has re-started to send the notices; and I trust other firms will re-consider the matter and send the notices for their mines. I feel quite sure that if they only consider the matter from the points of view of advantages and disadvantages, without the many other considerations that come in, that sending the notices as before will win.

20.—Occupations of the persons killed during the years 1894, 1895, 1896 and 1897.

No.	OCCUPATION.	1894.		1895.		1896.		1897.		REMARKS.
		Below ground.	Above ground.	Below ground.	Above ground.	Below ground.	Above ground.	Below ground.	Above ground.	
		Number killed.	Number killed.	Number killed.	Number killed.	Number killed.	Number killed.	Number killed.	Number killed.	
1	Superintendents . . .	...	...	...	...	...	...	...	...	
2	Mining Assistants . . .	1	...	...	...	...	...	...	...	
3	Foremen . . .	...	...	...	...	...	1	...	...	
4	Sirdars . . .	...	...	...	...	1	...	...	...	
5	Jemadars . . .	...	...	...	...	...	...	...	...	
6	Mistris . . .	...	...	1	...	...	...	...	...	
7	Munshis . . .	...	...	...	...	...	...	...	...	
8	Mates . . .	...	...	...	...	...	...	...	...	
9	Petty Contractors . .	1	...	...	...	...	...	...	...	
10	Miners, hewers and coalcutters	66	...	39	...	26	...	13	1	
11	Coal carriers . . .	3	...	...	...	3	...	2	...	
12	Fillers . . .	1	...	1	...	2	...	10	...	
13	Trammers and shunting coolies	2	3	1	1	3	...	...	...	
14	Sinkers . . .	4	...	...	...	...	...	1	...	
15	Blasters . . .	...	...	...	...	...	...	1	...	
16	Drillers and drillers coolies .	2	...	1	...	...	...	1	...	
17	Stone cutters . . .	...	...	1	...	...	...	1	...	
18	Stone and mati carriers .	...	...	...	...	...	...	...	1	
19	Dust coolies . . .	...	...	...	...	1	...	3	...	
20	Coolies or labourers . .	14	4	33	...	10	4	29	1	
21	Tub boys . . .	...	...	...	...	...	...	...	...	
22	Carpenters . . .	1	...	...	...	...	...	...	...	
23	Timbermen . . .	...	...	2	...	...	...	...	...	

Occupations of the persons killed during the years 1894, 1895, 1896 and 1897—contd.

No.	OCCUPATION.	1894.		1895.		1896.		1897.		REMARKS.
		Below ground.	Above ground.	Below ground.	Above ground.	Below ground.	Above ground.	Below ground.	Above ground.	
		Number killed.	Number killed.	Number killed.	Number killed.	Number killed.	Number killed.	Number killed.	Number killed.	
24	Enginemēn and stokers .	...	...	I	...	...	...	I	...	
25	Hookers-on . . .	...	...	...	...	2	...	...	...	
26	Landers . . .	...	...	...	...	...	...	...	...	
27	Signalmen . . .	...	...	...	...	...	...	I	...	
28	Ropemen . . .	I	...	...	...	...	...	...	...	
29	Khalasis . . .	2	...	I	...	I	...	...	...	
30	Pump and air-pipe fitters .	...	...	2	I	2	...	...	...	
31	Pump boys . . .	...	...	...	...	...	...	...	...	
32	Bucketmen . . .	...	...	...	...	...	...	...	...	
33	Bailing coolies . . .	...	I	...	...	...	...	I	...	
34	Door keepers . . .	...	...	...	...	...	...	I	...	
35	Oil boys and assistant boys .	...	...	2	...	...	...	I	...	
36	Screeners . . .	...	...	...	...	...	...	...	4	
37	Train or locomotive drivers .	...	I	...	...	...	...	...	...	
38	Brakesmen . . .	I	...	...	...	...	I	I	...	
39	Platelayers, plate-laying makadams, coolies and line- men . . .	I	...	2	I	2	...	I	...	
40	Blacksmiths . . .	...	...	...	...	...	...	...	...	
41	Carters . . .	...	...	...	...	...	...	...	...	
42	Syces . . .	...	...	...	...	...	...	...	...	
43	Watchmen . . .	...	...	...	...	...	...	...	...	
44	Postal carriers . . .	...	...	...	...	...	...	...	I	
45	Sundry work . . .	I	...	...	...	...	...	I	...	
46	Unknown, and not employed at the mine . . .	15	4	5	4	...	I	...	...	

21.—PARTICULARS OF MINES, MINERALS, AND EMPLOYÉS FOR THE RAJPUTANA STATES FOR THE YEAR 1897.

Number of mines at work, average number of persons employed, and weight of saleable minerals wrought during the year 1897.

1	2	3	4	5	6						7	
Situation of Mines,--State, Province, Division or District.	Names or descriptions of minerals wrought.	Number of mines at which each mineral was being worked during December 1897.	State or condition of the minerals as named or described, whether dressed or undressed, etc.	Weight wrought of minerals as named or described.	NUMBER OF PERSONS EMPLOYED AT EACH KIND OF MINE.						REMARKS.	
					Below ground.		Total below ground.	Above ground.		Total above and below ground.		
					Males.	Females.		Males.	Females.			
MEYWAR.												
Villages of Parsola, Paholi, Jikti, Manoharguth, and Bijolia of Meywar.	Iron	14	Ore	7,201 maunds .	No account kept of persons employed						The average wage of the labourers employed in the mines is annas 2 per man per diem. The mines are only worked for 2 or 3 months during the year.	
Village of Magrup in Meywar	Chalk	2	Dressed	3,600 "	Do.		Do.					There are iron mines at Bamanpardu and Lahria, but they are not worked. Khari salt is prepared in the district. This salt is used by men and for cattle. It is also used in preparing country soap and gunpowder. There are stone mines at Telwara, Chinch Bori, Narwali, Mclan, Pipal-khoont, and Kurchi. There is a mine of glazing earth in the Banswara territory. This earth is used in glazing earthen pots, and is also exported to the neighbouring states.
Banswara	Iron	...	Ore	840 "	50	...	50	65	35	100	150	
MARWAR.*												
Perganas of Jodhpore, Sajai Dewana, and Marot.	Sandstone	120	Undressed	20,810 tons .	None .	None .	None .	509	31	540	540	* No persons are now shown as employed below ground, as it has been ascertained they were so classified in previous returns by misapprehension, there being no underground working in the Western Rajputana States.
Makrana	Marble	40	Dressed and undressed.	330 "	Do. .	Do. .	Do. .	115	54	169	169	
Nagore Pergana	Khudi or Gypsum.	24	Undressed	8,035 "	Do. .	Do. .	Do. .	195	48	243	243	
JAYSULMERE.												
Dewa Pergana	Lime clay	1	Lumps of raw earth.	80 "	Do. .	Do. .	Do. .	3	...	3	3	carried in open pits. Sets quickly, but does not wear long. Used in Jey ulmere town buildings.
Ditto	Multani Mitti (Fuller's earth)	4	In thin layers	214 "	Do. .	Do. .	Do. .	6	...	6	6	Quarried in open pits. The clay was exported from 4 quarries against 2 last year.
Devikote Pergana	Geru (Bed ochre).	1	In broken pieces	$\frac{1}{2}$ ton .	Do. .	Do. .	Do. .	1	...	1	1	The demand was small. No Durbar tents were dyed.

Jeysulmere Pergana	Seri Mitti	1	Do.	18 tons	Do.	Do.	2	...	2	Quarried in open pits, and is used in Jeysulmere town for white-washing.
Ditto	Yellowish	8	Undressed	1,785 $\frac{3}{4}$	Do.	Do.	16	...	16	Quarried in open pits and is used in Jeysulmere town buildings.
Ditto	Do.	3	Roughly dressed	21 $\frac{1}{2}$	Do.	Do.	2	...	2	Roughly dressed and exported to Gujarat and Kathiawar.
Ditto	Mosaic	1	Do.	3 $\frac{1}{2}$	Do.	Do.	1	...	1	Fancy articles are made of this stone and sold.
Ditto	Yellowish	1	Do.	7	Do.	Do.	1	...	1	Used for Cenatophs of Chiefs at Badi.
Ditto	Whitish	1	Do.	21 $\frac{1}{2}$	Do.	Do.	1	...	1	This stone is easily carved.
Ditto	Mosaic with stripes of red earth.	1	Do.	14 $\frac{1}{2}$	Do.	Do.	2	...	2	Used in fancy articles and floors of mosques and temples.
Ditto	Reddish brown.	8	Do.	232	Do.	Do.	12	...	12	Grinding mills are made of this and sold in the Jeysulmere territory, as well as exported to Sindh. No new industry was started. No new mineral was discovered. No fresh impetus was given to the trade. The quarrymen earn from 4 to 8 annas a day according to their strength and skill.
SIROHI.	Stone and lime-stone.	1	Dressed and undressed.	*11,645	No reliable data available.					* Of this stone 2,449 tons were used for lime. No persons are now shown as employed below ground, as it has been ascertained they were so classified in previous returns by misapprehension, there being no underground workings in the Western Rajputana States.
Morthola	Slabs	1	Dressed	290						
Palri.	Stone	1	Undressed	1,887 $\frac{1}{2}$						
Mount Abu	Do.	1	Do.	1,192						
Sirohi										
KOTAH.										
Half a mile from Indergurh a Kotri in the Kotah State.	Iron ore	7 mines (Worked in Sept. and Oct. and not in Dec.)	Undressed iron ore.	1,000 maunds of undressed and 80 maunds of saleable iron.	200	100	300	...	...	300
ULWAR.										
Rajgurh, District Ulwar	Do.	1	Mixed with clay	275	8	...	8	12	12	20
Village Dherora in Tehsil Thana Ghazi, District Ulwar	Do.	1	Do.	275	8	...	8	12	12	20

There are over 23 iron ore mines and quarries in Rajputana, at which probably over 500 persons are employed daily. There are also 220 mines and quarries, at which chalk, sandstone, marble, gypsum (khudi), lime clay, Fuller's earth (Multani mutti), red ochre (Geru), Seri mutti, and other kinds of stones and materials are wrought. "No proper account has been kept of the number of persons employed," but most probably over 1,000 persons are employed at these mines daily. The similar return, Form 23, for the year 1896 was not received until the 16th of April 1898. The statements relating to mines in Jeypore have not been received, but they are promised as soon as the Resident of Jeypore sends them to head-quarters in Rajputana. Accidents.—There were no fatal or other accidents reported from these Rajputana mines and quarries.

Form No. 23.

Number of mines at work in December 1897, average number of persons employed daily, and weight of saleable minerals wrought during the year 1897, in the Kishengarh State, Rajputana.

1	2	3	4	5	6					7	
					NUMBER OF PERSONS EMPLOYED ON EACH KIND OF MINE.						
					Below ground.		Total below ground.	Above ground.			Total above and below ground.
					Males.	Females.		Males.	Females.		
Situation of Mines—State, Province, Division, Sub-division or District.	Names or descriptions of minerals wrought.	Number of mines at which each mineral was being worked during December.	State or condition of the minerals as named or described.	Weight wrought of mineral as named or described.	Males.	Females.	Total below ground.	Males.	Females.	Total above and below ground.	REMARKS.
Kishengarh	Sand stone, beams and slabs.	107	Dressed . .	52,728 maunds .	...	...	...	214	36	250	
Rupnagar	Sand stone, pillars and doorways.	4	Do. . .	4,000 "	...	...	...	7	2	9	
Sarwar	Garnets . .	14	Undressed .	15 "	48	...	48	...	24	72	
Ditto	Beryl . .	2	Do. . .	$\frac{1}{4}$ maund .	...	...	...	2	...	2	Worked experimentally, departmentally.
Arain	Mica . .	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Not at work.

This form was received very late, and was added just on sending the report to Press.
The returns of Forms 23, 24, and 25 were received for the States of Jeypore and Kishengarh, for the year 1896, on the 9th of May 1898. The forms for accidents were blank.
The following are the particulars shown on Form 23, for the year 1896.

Form No. 23.

Rajputana, Jeypore and Kishengarh States.
Number of mines at work in December 1896, average number of persons employed daily, and weight of saleable minerals wrought during the year 1896.

1	2	3	4	5	6						7
					NUMBER OF PERSONS EMPLOYED ON EACH KIND OF MINE.						
					Below ground.		Total below ground.	Above ground.		Total below and above ground.	
					Males.	Females.		Males.	Females.		
Situation of Mines.—State, Province, Division, Sub-division or District.	Names or description of minerals wrought.	Number of mines at which each mineral was being worked during the year.	State or condition of the minerals as named or described.	Weight wrought of minerals as named or described.							REMARKS.
Khetri and Babai in Jeypore	Cobalt . . .	2	Undressed . .	3 maunds . .	1,100	...	1,100	400	300	*	* These figures represent the number of labouring units during the year.
Banwas, pergana Singhana (Jeypore).	Copper . . .	4	Do. . .	21 " . .	2,130	...	2,130	...	...	700	
Kishengarh . . .	Sandstone . .	104	Do. . .	51,240 " . .	104	...	104	104	35	139	
Rupnagar in Kishengarh . .	Sandstone, Pillars and door ways	5	Do. . .	5,000 " . .	3	2	5	5	...	5	
Sarwar ditto . .	Garnets . . .	25	Do. . .	32 " . .	4	...	4	...	2	2	
Arain ditto . .	Mica . . .	...	Do. . .	Nil . .	Nil	Nil	Nil	Nil	Nil	Nil	Not at work.

22.—THE MYSORE MINES.

Report of the Inspector of Mines in the Mysore State for the year 1896.

Early in this year, 1898, I was favoured with a copy of the "Report of the Inspector of Mines in Mysore for the year 1896." The matters dealt with in that report being such old news, it will perhaps suffice if I give a summary of it with the most useful abstracts.

1. The Inspector says that the statistics of fatal accidents during the year 1896 show a marked improvement over those of 1895.

The total number of deaths below ground was 29, as compared with 46 in the year 1895.

The total number of deaths below ground and above ground was 33 in 1896, and 50 in 1895.

To increase the death-rate of the year 1895 there was a serious accident by which 16 lives were lost by the fumes of burning blasting gelatine; and there were 4 other accidents, in each of which 3 or 4 lives were lost.

With reference to increase of death-rate from more than ordinarily large accidents, I may here mention that the death-rate for 1897 will probably show large, when the figures are available, for a wire from the Resident in Mysore, dated the 15th September 1897, stated that "There has been a fearful accident in the Champion Reef mine owing to mismanagement in regulating ascent of coolies crowding up: shaft became blocked, panic ensued, and several coolies lost their hold and fell down shaft; 44 were killed and several injured. Enquiry in progress."

The total number of separate fatal accidents in the year 1895 below ground was 20; and 28 in 1896. And the total number of separate fatal accidents below ground and above ground was 24 in 1897, and 32 in 1896.

2. A comparison is made to show the relative mortality in the Transvaal, where the character of the labour employed is in some respects similar to that in Mysore. And it is stated that the death-rate is smaller in Mysore than in the Transvaal, but the number of deaths incurred in dealing with the same amount of quartz is greatest in Mysore.

The Inspector goes on to say that the death-rate is still higher than it should be, and much remains to be done in placing the mines on a satisfactory footing. And with a view to the prevention, as far as possible, of accidents to those employed, he recommends that every part of the mine where men are at work should be placed under the charge of an experienced man who would be responsible for the safety of those under him. After showing that the workmen are left to work without any one in charge to visit them he says:—"It is, in my opinion, absolutely necessary that every party of men should be at all times under the charge of an experienced miner, European or Indian, who has received a certificate of competency, and who will be responsible for the safety of those under him. A similar certificate should also be required in the case of all blasters and engine-drivers."

3. At present there is a staff of European timbermen and underground foremen, to whom is entrusted the immediate supervision of the work. But they are too few to be able to carry it out effectively. It is very common for a man to have as many as fifteen different working places under his charge.

4. I would recommend that a sufficient number of European underground foremen or head timbermen should be employed to allow of each man having not

more than 6 or 7 working places to look after. A native, if specially qualified, might, in certain cases, be employed for this work. Every working place should be inspected by one of these men in the course of the morning shift.

In case any working place should, when inspected, be found to be unsafe, the matter should be referred to a superior officer of the mine and an enquiry should be at once instituted, and if negligence be shown on the part of the man in charge of the working place, he should be severely punished.

4. The accidents from falls of ground have been rather numerous in 1896. Nearly every case has occurred when stoping ground (that is, removing quartz for crushing) adjoining a place which has been worked out some time previously. When a stope has been worked out, even if it has been filled with deads (useless rock generally known as "black rock" in Mysore), the hanging wall soon begins to settle down, leaving a crack above it, which may extend to some extent into the surrounding area and serve as a means of introduction of air and moisture into the rock. When the ground adjoining is subsequently stoped, the plane of division above the ground that had settled easily extends to the place where the work is going on, and the fall of a large mass of the hanging wall very often follows. If special care be taken in such cases, I believe the number of accidents from falls of ground may be materially reduced.

5. I have carefully examined the Rules proposed by the Kolar Gold Field Mining Board; also those of New South Wales, the Transvaal, the United Kingdom, and the draft of the Indian Mines Act; and after careful consideration of the special circumstances of the mines in Mysore, the methods employed in working them, and the character of the labour employed, I believe that the new Mysore Mines Regulation, which has recently been given the force of law, will, if carefully enforced, very materially diminish the number of fatalities in future years.

REMARKS.

A very serious accident happened on the 11th of September 1897 at the Champion Reef mine, Kolar Gold field, Mysore State, by which 52 of the workmen lost their lives. It appears that the workmen were trying to leave the mine a little earlier than usual, owing to it being pay day, but when the first part of the workmen got up the ladder-way to the top of the shaft they found that the watchman there was keeping the top of the shaft closed to prevent their exit. A great number of workmen accumulated and crowded on the ladders in the shaft and partly blocked the air-passages. The excitement became great, and some of the men slipped and fell down the ladder-way; then a panic ensued, during which at least a hundred men fell off the ladders into a heap that blocked the air-passage and crushed many to death, the result being that 44 were dead when taken out and 8 more subsequently died. This is such an accident that may readily happen again if the bad practice of closing the tops of the shafts is continued—J. G.

Form No. 23.

Number of Mines at work in the Mysore State in December 1896, average number of persons employed daily, and weight of saleable minerals wrought during the year 1896.

1	2	3	4	5	6						7	
					NUMBER OF PERSONS EMPLOYED AT EACH KIND OF MINE.							
					BELOW GROUND.		Total below ground.	ABOVE GROUND.		Total above and above ground.		
					Males.	Fe- males.		Males.	Fe- males.			
Situation of Mines— State, Province, Division or District.	Names or descriptions of minerals wrought.	Number of mines at which each mineral was being worked during December.	State or condition of the minerals as named or described, whether dressed or undressed, etc.	Weight wrought minerals as named or described.	REMARKS.							
State of Mysore . .	Gold	1. No. 15, Honnali . .	Unrefined bar gold.	0 0 0	18	...	18	20	...	20	38	Not working. Work discontinued in June. No mining work in 1896.
	"	2. Honnali Tribute Syndicate .	"	16 5 0	16	...	16	30	...	30	46	
	"	3. Mysore Nagar Gold Mine .	"	0 0 0	36	...	36	20	...	20	56	
	"	4. Mysore Kadur Gold Mine .	"	0 0 0	50	...	50	14	2	16	66	
	"	5. Mysore Harnahalli Gold Mine	"	0 0 0	...	...	...	...	...	...	...	
	"	6. Kempinkote Gold Field, "Hassan Works,"	"	0 0 0	122	...	122	112	10	122	244	
	"	7. Road Block . .	"	0 0 0	...	...	...	...	...	...	...	
	"	8. Nine Reefs Mine . .	"	62 15 0	141	...	141	176	8	184	325	
	"	9. Balaghat Mysore Mines .	"	2,847 0 9 $\frac{3}{4}$	20	...	20	150	24	174	194	
	"	10. Gold Fields of Mysore .	"	405 12 12	340	...	340	258	45	303	643	
	"	11. Coromandel Gold Mine .	"	6,303 14 0	295	...	295	290	144	434	729	
	"	12. Oriental Gold Mine .	"	0 0 0	58	...	58	132	12	144	202	
	"	13. Tank Mine . .	"	6,104 0 0	350	...	350	240	10	250	600	
	"	14. Nundidroog Mine . .	"	44,925 0 0	1,271	...	1,271	831	103	934	2,205	
	"	15. Ooregum Gold Mine . .	"	65,583 6 0	1,954	...	1,954	754	31	785	2 739	

23—The Earthquake

The earthquake that happened on the afternoon of the 12th of June 1897 (at about 5 P.M. in Calcutta) was so unusual in its severity and extent, and did so much damage over such a large part of India, that I was most anxious to know how the mines and the miners had been treated by it, and to what extent they suffered.

In order to get some of this information I sent letters asking for particulars from a fairly representative number of Mine Owners and Managers, and I am most thankful to say that they responded in a way that deserves my best thanks.

The following few pages give the names of the persons who supplied me with particulars, with the general positions of their mines; and also the principal portions of their replies.

No.	Name of Company and situation of Mine.	Person who supplied the information.	REMARKS.
BENGAL PROVINCE.			
1	The Bengal Coal Co., Ltd. Collieries at Barakar, Ranigunj, Giridih, etc.	Seymour Wood, Esq., Chief Mining Engineer, Calcutta.	
2	Barakar Coal Co., Ltd. Collieries at Barakar, Sitarampur and Jherria.	Messrs. Bird & Co., Managing Agents, Calcutta.	
3	The Borrea Coal Co., Ltd. Collieries at Salampur, Sitarampur.	H. Ashcroft, Esq., Manager, Sitarampur.—Managing Agents Messrs. F. W. Heilgers & Co., Calcutta.	
4	Messrs. Apcar & Co.'s collieries, Churunpore Section, <i>via</i> Assansol.	E. M. Patterson, Esq., Churunpore <i>via</i> Assansol.	
5	New Beerbhoom Coal Co., Ltd. Collieries near Assansol.	S. Heslop, Esq., Manager, Assansol.	
6	Equitable Coal Co., Ltd. Collieries at Deshergur, <i>via</i> Barakar.	W. Miller, Esq., Manager, Deshergur, Barakar.	
7	Katras Jherria Coal Co., Ltd. Collieries at Katrasgarh, E. I. R.	J. H. Charlesworth, Esq., Manager, Katrasgarh, E. I. R.	
8	East Indian Railway Company's Collieries at Giridih.	Dr. W. Saise, Superintendent, E. I. Railway's Collieries, Giridih.	
CENTRAL PROVINCES.			
9	Government of India, Collieries at Umaria.	R. J. W. Oates, Esq., Manager, Umaria Colliery, Umaria.	
10	Government of India, Collieries at Warora.	R. Wordsworth, Esq., Offg. Manager, Warora Colliery, Warora.	
11	Nerbudda Coal and Iron Co., Ltd. Mines at Mohpani.	F. L. G. Simpson, Esq., Agent and Manager, Mohpani Mines, Mohpani <i>via</i> Gadawarra Railway station.	

No.	Name of Company and situation of Mine.	Person who supplied the information.	REMARKS.
ASSAM.			
12	The Assam Railways and Trading Co., Ltd. Mines at Margheritta.	A. B. Mowell, Esq., Acting Manager, Margheritta.	
13	Ditto Ditto	S. S. Hawkins, Esq., Agent and General Manager, through the Secretary to the Chief Commissioner, Assam.	
HYDERABAD (DECCAN).			
14	The Hyderabad (Deccan) Co., Ltd. Collieries at Yellandu.	Thos. Wilkinson, Esq., Manager, Singareni Collieries, Yellandu.	
UPPER BURMA.			
15	Burma Coal Co., Ltd. Kabwet Post Office, Upper Burma.	F. Hermann, Esq., Agent and Manager, Kabwet Post Office, Upper Burma.	

No.	Name and position of the Mine.	Person who supplied the information.	Effects of the earthquake on the 12th June 1897.	REMARKS.
1	Burrakur Coal Co., Ltd. Collieries at Barakar, Sitarampur & Jherria.	Messrs. Bird & Co., 5, Clive Row, Calcutta, Managing Agents.	"Our managers have reported to us that no damage either above or below ground occurred at one of our collieries owing to the earthquake."	
2	The Borrea Coal Co., Ltd. Salanpore Collieries, Sitarampur.	{ H. Ashcroft, Esq., Manager. Messrs. F. W. Heilgers & Co., 139, Canning Street, Calcutta, Managing Agents.	"The earthquake of the 12th June last had absolutely no effect here. The buildings shook a little but no damage was done, and the shock was not felt at all under ground. I may mention we only had a very slight earthquake here."	
3	Messrs. Apcar & Co.'s Collieries, Churunpore Section <i>via</i> Assansol.	E. M. Patterson, Esq.	"With the exception of the arch of our locomotive shed being cracked, no damage was done by the earthquake of the 12th June last, either above ground or below ground."	
4	Umaria Colliery, Central Provinces, Umaria.	R. J. W. Oates, Esq., Manager.	"A slight earth tremor was felt here on Saturday, the 12th June 1897, between 4 and 4-30 P.M., and lasted for about 3 minutes. It did not do any damage to these mines either on surface or under ground."	
5	Warora Colliery, Central Provinces Warora.	R. Wordsworth, Esq., Officiating Manager.	"The earthquake was not felt at all here, and so our mines were not affected. I have not heard of the effect made by the earthquake in other mines more than what has been published in the newspapers."	

6	New Beerbhoom Coal Co., Ltd., Assansol.	H. Heslop, Esq., Manager. Messrs. Balmer, Lawrie and Co., 103, Clive Street, Calcutta, Managing Agents.	"With regard to the mines, I am glad to be able to state we received no damage nor was any particular effect of the shock noticed. As regards other collieries in the district, I have not learnt of any material damage having been caused."	"The earthquake was very severe in this district, and considerable damage was done to buildings in the district, though not to the same extent, I believe, as some other districts and towns."
7	Nerbudda Coal and Iron Co., Ltd., Mohpani Mines, C. P.	F. L. G. Simpson, Esq., Agent and Manager.	"We felt the earthquake here, but no damage to property was heard of, neither did we note any effect on the strata in the mines."	
8	The Hyderabad (Deccan) Co., Ltd., Singareni Collieries, Yellandu.	Thos. Wilkinson, Esq., Manager .	"The earthquake, which was felt in other parts of India on the 12th June last, was not, as far as we know, felt in His Highness the Nizam's Dominions, and our workings both above and below ground were in no way affected by it. In fact, we were quite unaware of its existence until we read an account of it in the newspapers."	
9	Equitable Coal Co., Ltd., Desher- gur, <i>via</i> Barakar, East Indian Railway.	W. Miller, Esq., Manager . . .	"The recent earthquake had very little effect on the mines of this district further than causing some loose coal from corners of pillars to fall. In one case at our Luchepore No. 4 Pit, the miners came to the surface, but after being told what was the matter, returned to their work again. I have not heard of any serious damage done anywhere throughout the Colliery Districts, although I hear that in some places extra water has been experienced during the rains this year, and this in many cases is attributed to the earthquake having cracked the strata to some extent. I cannot say definitely that we have suffered ourselves much from this, although in one or two cases we have had more water than usual, although the rains this year have not been heavier than is usual."	

No.	Name and position of the Mine.	Person who supplied the information.	Effects of the earthquake on the 12th June 1897.	REMARKS.
10	Katras Jherria Coal Co., Ltd. Katras Colliery, Katrasgarh Station, East Indian Railway.	J. H. Charlesworth, Manager. Managing Agents Messrs. Andrew Yule and Co., Calcutta.	"No damage either below or above ground was done in this colliery by the earthquake which took place on the 12th June 1897."	
11	The Assam Railways and Trading Co., Ltd., Margherrita, Assam.	A. B. Mowell, Esq., Acting Manager	"We did not suffer any very serious damage here apparently. We find that the upper seams, and particularly the ones with little covering, are more or less broken and shaken. In fact one seam has been so badly broken that it is now very troublesome to work. The openings were shaken somewhat, and some of the roads a good deal damaged, but nothing of course but what could be repaired by timber. Apart from the mines practically no damage was done beyond shaking plaster from bungalows, etc. The tea gardens do not complain of any damage in this district."	In a mine worked by the Khasias, very near the surface, the earthquake had a great effect on the mine and killed 17 of the workmen at the time.—J. G.
12	The Bengal Coal Co., Ltd. Collieries at Ranigunj, Barakar and Giridih.	Seymour Wood, Esq., Chief Mining Engineer.	"I have pleasure in forwarding you information on the above subject from my observations. LAKDEE QUARRIES AND CHANCH COLLIERY— No effect whatever either under ground or on the surface. RANEEGUNGE, MADHUBPORE AND NIMCHA— No <i>under ground</i> damage.	It has more recently been found that the earthquake did much more damage than was for sometime suspected. The coal pillars were crashed in such a way that when a movement in the goaf began the coal pillars subsided and let down the strata to the surface.

Surface.—The under manager's bungalow at Madhub-pore was damaged. The pillars supporting the west verandah were all broken off near the base, above one foot from the floor level, and the building is otherwise damaged.

GIRIDIH COLLIERIES—

Under ground.—The pits on this day were all idle. There was a very large goaf standing at Nos. 21 and 22 pits, which from the shock started to “work.” The whole of the goaf fell very heavily, bursting out stoppings, etc., within 24 hours.

Surface—No damage.

SANCTORIA AND SODEPORE COLLIERIES—

Under ground.—*Sanctoria seam*.—At the time of the shock one of the assistants was in No. 10 pit travelling along No. 9 level towards the pillar cutting, he felt a slight movement which he attributed to slipping and really felt little or no shock, but on going further in bye he met all the miners running out bye who were in a great fright thinking the pit had collapsed, and something was the matter on the surface.

DESHERGHUR SEAM.—The shock was felt by the miners in this seam, who ran out bye thinking that something had happened on the surface. Several small falls of roof and scaling of coal from pillars have taken place since the earthquake, and there can be no doubt that the whole of the workings have been shaken more or less. The increase of water has been considerable, partly due and directly traceable to the damage done to the arching (from the surface to the coal) in the inclines, through which the surface water has percolated.
“*Surface damages* were practically *nil*.”

This may have happened at other mines where the coal was cut out into pillars and galleries at the time of the earthquake, and should lead to much greater care being exercised, and more support kept for the roof for that reason.—J. G.

No.	Name and position of the Mine.	Person who supplied the information.	Effects of the earthquake on the 12th June 1897.	REMARKS.
13	Burma Coal Co., Ltd., Kabwet P. O., Upper Burma.	F. Hermann, Esq., Agent and Manager.	"The effect of the earthquake of the 12th June last on this mine was <i>nil</i> . The shock here was of no importance."	
14	East Indian Railway Collieries, Giridih.	Dr. W. Saise, Superintendent	"The earthquake did not have any effect below ground. Some bungalows were slightly cracked by the earthquake, and this was all the effect it had."	
15	Assam Railways and Trading Co., Ltd.	S. S. Hawkins, Esq., Agent and General Manager, Assam Railways and Trading Co., Ltd., through the Secretary to the Chief Commissioner, Assam.	"At the time of the earthquake on the 12th June work for the day had ceased in all our mines, there being no night shift on this day and the day shift finishing at 4 P.M., and at the time, 5-35 P.M., local time, no coolies were at work under ground. The damage done to our mines by the earthquake was not extensive or serious. Several falls occurred in the main roads and which had to be cleared and the roof retimbered before work could be resumed, while in our upper seams, chiefly the new 25 feet seam of upper Ledo colliery, where the cover is very thin, the strata were disturbed and distorted. To this latter is to be attributed the fatal accident which occurred at 1 P.M. on the 15th June, by which 3 coolies were killed by an extensive fall in the opening in the 25 feet seam in upper Ledo colliery, and which was reported to you at the time, <i>vide</i> our Colliery Manager's Report, dated 15th June."	

24.—THE MINING STATISTICS OF THE UNITED KINGDOM.

I think it is well that a statistical connection should be kept up on mining matters, between India and the United Kingdom of Great Britain and Ireland, including the Isle of Man. This need not necessarily always occupy much space, but sufficient information and statistics should be given to enable any one to understand the figures, and make comparisons, in connection with some of the most important mining matters.

United Kingdom.

1. Changes just now being made in the Home Office publications relating to the statistics of mines and quarries.

The three separate and distinct publications hitherto issued are now to be combined in a single work, which will be issued in four parts.

The three separate publications hitherto issued from the Home Office were—

(1) The "*Summaries.*" These were originally compiled by the Inspectors of Mines. Each Inspector collected statistics in regard to persons employed, accidents, and quantity of minerals raised in his own district; and at their meeting at the Home Office, in the month of February, the Inspectors combined the results in a single volume giving the figures for the whole of the United Kingdom.

In the year 1894, in consequence of a recommendation of the Departmental Committee on Mining and Mineral Statistics, the labour of compiling these summaries was undertaken by the Mineral Statistics Branch of the Home Office. At the same time, on the passing of the Quarries Act of 1894, the tables were extended so as to include the figures relating to Quarries. In this publication the figures were arranged, principally, according to the inspectorial districts and without any reference to counties.

(2) The "Mineral Statistics of the United Kingdom." This volume was originally prepared by Mr. Robert Hunt, the Keeper of Mining Records, Museum of Practical Geology, Jermyn Street. In the year 1883, the duty of compiling the book was transferred to the Home Office and entrusted to the Mineral Statistics Branch which was then formed. This work gave the output and value of all minerals raised from mines and quarries in the United Kingdom, and the quantity and value of the metals contained in the various ores. It also contained statistics as to the import and export of minerals and other particulars, and in an appendix the output and value of minerals in the British Colonies.

(3) "The Annual General Report upon the Mining Industry." This dates only from the year 1894. It was issued in order to carry out the recommendations of the Royal Commission on Mining Royalties and of the Departmental Committee of 1894. The Committee recommended that a General Report on the whole Mining Industry should be prepared annually, and that "it should contain tabulated statements which will enable comparisons to be made between different mining fields, counties or districts, as regards persons employed, output, accidents, death-rates from accidents, royalties, way-leaves, hours of labour, wages, consumption and distribution;" and that comparisons should be instituted between the Mining Industry of the United Kingdom and of foreign Countries.

The above three works are in future to be combined in a single publication, but, to avoid the delay in publication that some of the statistics would occasion

if the publication was delayed until the whole of the statistics could be given, it has been decided to issue the publication in four successive parts.

Descriptions of the four parts.

Part I. District Statistics.—This part will correspond with the existing "Summaries" with certain modifications.

Part II. Labour.—This will deal with the questions of employment in mines and quarries, the safety of the employed, the enforcement of the Mines and Quarries Acts, and some miscellaneous matters.

Part III. Output.—This will deal with the question of the output of mines and quarries, and generally with mineral production, transport and distribution.

Part IV. Colonial and Foreign Statistics.—This will consist of statistics relating to the Colonies and to Foreign countries; with any comparisons which it may be possible to institute in the matter of mineral production between Great Britain and its Colonies, and between the British Empire and foreign Countries.

The Annual Reports of the Inspectors of Mines.—The arrangement set forth above will not interfere in any way with the publication by each Inspector of his annual report on the district under his control.

Mineral workings.—Mineral workings in the United Kingdom may be classed under mines, quarries, and wells, dredgings, etc.

Mines.—It is the nature of the excavation and not the nature of the mineral worked which decides whether a given working is a mine or not. To be a "mine" the working must be under a cover of earth or rock; and in addition to all underground workings, the term "mine," by the definitions in the Mines Acts includes all shafts, levels, planes, works, tramways and sidings, whether above or below ground, in and adjacent to and belonging to the mine.

Quarries.—The Factory and Workshop Act, 1878, defines a quarry at follows:—"Any place not being a mine in which persons work in getting slate "stone, coprolites, or other minerals."

Wells, dredgings, etc.—Brine wells; and boreholes yielding brine, petroleum, etc., come under this class.

Mines and quarries are sub-divided according to the Acts of Parliament which have been passed with a view to ensure the safety of the persons employed in mines and quarries. Quarries come under a special Act, "The Quarries Act, 1894;" and they are distinguished as more or less than 20 feet deep, those less than 20 feet deep not being subject to special legislation, except in so far as they are touched by the Factory and Workshop Acts. This last remark applies also to wells and dredgings.

Statistics.—The statistics relate to all mines, including the works above ground at which the minerals are prepared for use or sale, by screening, washing, etc., and the quarries more than 20 feet deep, together with such works outside the actual pits, holes or excavations which are situated within a radius of one mile.

Persons employed—

(1) The total number of persons employed in and about all the mines of the United Kingdom was 728,713.

(2) Number employed at the mines that are under the Coal Mines Act was 695,213.

Persons employed in mines in the year 1897—

	At mines under the Coal Mines Act.	At mines under the Metalliferous Mines Act.	TOTAL.
Below ground—Males	558,305	19,921	578,226
Above ground—Males	132,457	12,956	145,413
Females	4,451	623	5,074
TOTALS .	695,213	33,500	728,713

(3) About 80 per cent. of the total workers under the Coal Mines Act were employed below ground ; and about 3·3 per cent. of the surface workers were females.

(4) About 59 per cent. of the total workers under the Metalliferous Mines Act were employed below ground ; and about 4·6 per cent. of the surface workers were females.

Quarries.

Inside—Males	58,837
Females	8
Outside—Males	63,063
Females	1,462
TOTAL IN 1897 .	123,370

Number of Mines and Quarries at work.

		Year 1896.	Year 1897.
Mines .	Under the Coal Mines Regulation Act . .	3,385	3,285
" .	" Metalliferous " " . .	731	722
Quarries .	" Quarries Act	...	6,922

Fatal Accidents—

- (1) At the mines under the Coal Mines Act there were 868 separate fatal accidents causing 930 deaths.
- (2) At the mines under the Metalliferous Mines Act there were 29 fatal accidents, which caused 49 deaths.
- (3) At the quarries under the Quarries Act there were 118 fatal accidents, which resulted in 123 deaths.

Death-rates from Accidents, from all causes.

	NUMBER OF PERSONS EMPLOYED, YEAR 1897.		TOTAL NUMBER OF SEPARATE FATAL ACCIDENTS, YEAR 1897.		TOTAL DEATHS FROM ALL CAUSES, YEAR 1897.		DEATH-RATE (YEAR 1897) FOR EVERY 1,000 PERSONS EMPLOYED.			DEATH-RATE (YEAR 1906) FOR EVERY 1,000 PERSONS EMPLOYED.			DEATH-RATE FROM ALL ACCIDENTS PER 1,000,000 TONS OF MINERALS RAISED.	
	Below ground.	Above ground.	Below ground.	Above ground.	Below ground.	Above ground.	Below ground.	Above ground.	Below and above ground.	Below ground.	Above ground.	Below and above ground.	1897.	1896.
At Mines under the Coal Mines Act	558,305	146,908	772	96	833	97	1.49	0.71	1.40	1.62	0.91	1.48	4.32	4.92
At Mines under the Metalliferous Mines Act	19,921	13,579	22	7	42	7	2.11	0.52	1.46	1.71	0.51	1.21	...	...
	Inside.	Outside.	Inside.	Outside.	Inside.	Outside.	Inside.	Outside.	Inside and Outside.	Inside.	Outside.	Inside and Outside.	...	...
At Mines under the Quarries Act .	58,845	64,525	89	29	93	30	1.58	0.46	1.00	1.60	0.60	1.10		

NOTE.—The death-rates of the workers at the mines under the Coal Mines Act, for 1897, were the lowest annual death-rates hitherto recorded.

Non-fatal accidents.

The number of non-fatal accidents reported during the year amounted to 4,255 at mines under the Coal Mines Act, 291 at mines under the Metalliferous Mines Act, and 1,075 at quarries under the Quarries Act.

Output of Minerals in the United Kingdom.

The total output of minerals at the mines under the Coal Mines Act was 215,145,025 tons, of which 202,119,196 tons were coal, 2,682,472 fireclay, 7,793,168 ironstone, 2,223,745 oil shale, and 326,444 tons of sundry minerals.

Adding 10,735 tons from open quarries, the total output of coal was 202,129,931 tons, which exceeds that of the previous year by 6,768,671 tons. This is the first time that the output of coal has reached two hundred million tons.

The total output of minerals at the mines under the Metalliferous Mines Act was 3,783,916 tons, of which 2,216,772 tons were iron ore.

The total quantity of stone and other minerals obtained from the quarries under the Quarries Act was 37,378,108 tons, of which 2,628,559 tons were iron ore.

Adding to the produce of mines and of quarries over 20 feet deep, 1,149,379 tons obtained from shallow open workings, we arrive at a total output of iron ore of 13,787,878 tons.

Inspectors of Mines.

The United Kingdom is divided into thirteen districts for purposes of inspection under the Mines and Quarries Acts.

There is a Chief Inspector to each district, and each of these has one or more Assistant Inspectors to assist in the district to which he is appointed.

Number of Chief Inspectors—13.

Number of Assistant Inspectors—26.

25.—QUANTITY, IN TONS, OF COAL PRODUCED IN INDIA DURING THE LAST EIGHTEEN YEARS.
(From the Administration Report on the Railways in India for 1896-97, etc.)

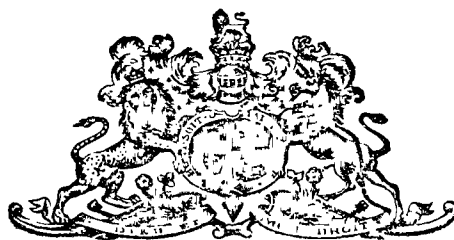
YEARS.	PROVINCES.										TOTAL.
	Bengal.	Punjab.	Central Provinces.	Assam.	Central India.	Nizam's Territory.	Madras.	Baluchistan.	Burma.	North-Western Provinces and Oudh.	
1880—1886*	Tons. 7,726,491	Tons. ...	Tons. 663,380	Tons. 131,059	Tons. 23,337	Tons. ...	Tons. ...	Tons. ...	Tons. ...	Tons. ...	Tons. 8,544,267
1887	1,319,090	7,523	128,581	89,302	15,497	3,259	...	411	...	...	1,564,063
1888	1,380,594	11,249	157,768	101,528	41,580	13,382	...	2,802	...	...	1,708,903
1889	1,541,356	22,835	144,465	116,676	52,056	59,616	...	8,238	...	...	1,946,172
1890	1,626,245	40,677	137,022	145,708	77,842	125,486	...	15,541	...	...	2,168,521
1891	1,747,122	60,714	141,736	154,208	69,741	144,668	20	10,368	...	...	2,328,577
1892	1,920,050	66,352	132,005	164,050	88,623	149,601	61	13,284	3,670	...	2,537,696
1893	1,870,720	77,294	135,118	164,420	94,348	157,421	502	20,094	9,938	...	2,529,855
1894	2,035,934	66,467	140,495	169,448	132,837	240,525	1,337	21,498	12,111	...	2,820,652
1895	2,345,761	72,493	122,776	172,717	118,479	292,915	1,737	23,259	17,289	...	3,167,426
1895†	3,550,069	72,493	122,776	172,717	118,479	292,915	1,737	23,259	17,289	...	4,371,734
1896†	3,037,920	79,017	141,185	177,259	115,386	262,681	...	10,572	22,993	1,000	3,848,013
1897	3,142,497	92,792	131,629	185,533	124,788	365,550	...	8,876	11,472	...	4,063,127
The following are the figures sent in the returns to my office.—J. G.											
1894	2,495,098	66,467	273,331	170,298	Included with Central Provinces.	240,525	1,337	24,753	12,368	...	3,284,177
1895	1,679,586	66,470	241,283	173,155	Ditto	292,914	1,737	25,458	17,290	...	2,497,893
1896			A sufficient number of returns were not received to enable the output to be given.								
1897	3,123,090	92,792	256,401	185,524	Ditto	365,550	...	12,154	...	...	4,035,517

* The figures for the years 1880 to 1886 were given in previous reports.

† The figures for 1895 and 1896 have been revised.

REPORT
ON THE
INSPECTION OF MINES IN INDIA,
FOR THE
YEAR ENDING THE 31ST DECEMBER
1898.

BY
JAMES GRUNDY, Esq.,
INSPECTOR OF MINES IN INDIA.



CALCUTTA :
OFFICE OF THE SUPERINTENDENT OF GOVERNMENT PRINTING, INDIA.
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REPORT
ON THE
INSPECTION OF MINES IN INDIA,
FOR THE YEAR ENDING
THE 31st DECEMBER 1898.

BY
JAMES GRUNDY,
Inspector of Mines in India.

27 CHOWRINGHEE ROAD,
CALCUTTA.
1st May 1899.

INTRODUCTION.

1. In compliance with the instructions of the 26th December 1893, that I should submit a report in July of each year, and also with subsequent instructions that the report should be for the previous calendar year, I have now the honor to submit my annual report for the year ending the 31st December 1898.

2. The statistics. The returns, known as Forms 23 and 26, are, and have always been, sent to me through District and other officers, *i.e.*, they are not sent direct to me by mine owners, agents, and managers, and this causes great delay and incompleteness in the preparation and the particulars of my annual report, and has hitherto been the principal cause of my report not being ready on the 1st of July. I have hitherto laid myself open to blame for the delay, in my great anxiety to make the report as complete and as accurate as possible. I have this year been compelled to cease including returns after the 1st of May, and, as a consequence, I have few particulars from which to compile statistics; so few indeed, that the statistics given herein are not of much worth, and those who may require full and accurate particulars of the mines in India, the persons employed, output, etc., will have to obtain these from other sources.

PART I.
GENERAL.

Inspections made during the year, periods spent on tour, and other general work—

1. Owing to pressure of work and illness, the three months privilege leave that was granted me in 1897 was taken at the time most suited for inspection work on tour, consequently, my leave reduced the time available for cold weather

Introduction.

touring. I returned from leave on the 13th of January 1898, and although I had proposed and arranged to begin inspecting mines forthwith before returning to Calcutta, I was informed on arrival in Bombay that the work of the office was in such a state that it was necessary for me to return to my office in Calcutta to get into order the current work of the office, and that was what I did. The correction of press proofs of reports, replying to enquiries, dealing with matters that had arisen out of mine accidents, etc., and the many matters connected with the current clerical work of the office prevented me from going on any mine inspection tour until the 5th of April.

Inspections.

2. I made 44 separate under-ground inspections during the year; also 33 mine inspections during which I did not go below ground into the workings of the mines. I left Calcutta and travelled up-country, for the sole purpose of making the above inspections, on eight occasions, occupying about 92 days. I was away from office, and Calcutta, and inspecting mines on four days, again four days, 31 days, 13, 5, 6, 26, and three days.

Other work.

3. The remainder of my time was taken up by personal attention to all the clerical work arising from the inspections and from all the other things connected with my official duties as Inspector of Mines, to which may be added interviews, writing reports, etc., etc.

The objects for which the under-ground inspections were made.

4. The actual objects of the under-ground inspections included inquiries and investigations of the causes of accidents, mines on fire; the collapsing of mine workings; dangerous mines; encroachments; testing for firedamp; timbering, and condition of roof and sides; ventilation; sinking pits; pillar workings, or working in the broken; shot firing; dams, and accumulations of water, and noxious gases; fencing of pit mouthings; encroachment near and towards a fire; dispute; explosions of firedamp; and other general matters. The foregoing statements show roughly the order in which the matters occurred.

The objects for which the surface inspections were made.

5. The actual objects of the surface or above-ground inspections of mines, etc., included the breaking up and sinking of surface ground near railways, and fear for the safety of the railway line; accidents to workmen and women; mine fires; magazines for explosives; sinking pits; defective winding engines; fencing tops of shafts; collapse of ground and surface engine-house; safety-lamp room; plans; oil borings and many other general matters.

Subjects of Reports.

6. The reports included those to the Agent of the East Indian Railway Company on a mine subsidence at Raneegunge; to a mining firm with reference to re-opening a mine on fire, and the dangers attending the proposal; to a Commissioner with reference to some new mining leases; to District Magistrates with reference to so-called dangerous mines, and their proposals to have the working of the mines stopped; to an officer of the Bengal Government on the heating qualities of the varieties of Bengal coal; to a Magistrate in Hyderabad, Sind, on the training for mining engineers; and to a Deputy Commissioner as to matters connected with a fatal accident, at the request of the local Magistrate and of the Deputy Commissioner.

General matters written about.

7. The general matters on which I wrote included correspondence with, and for, the Secretary to the Agent, Governor General, Baluchistan, with reference to the proposed appointment of a local Inspector or Mining Engineer to prospect and take overlooking charge of all the mines near to Quetta; correspondence with mining people on the same subject. Requests for particulars of the output and the distribution of Bengal Coal. Supplying some of the pamphlets on the Legislation and Sanitation of Indian mines. On the new mining rules for the Bengal Coal Company; and also for the East Indian Railway Company's mines,

drawn up by themselves. A member of the Geological Survey of Pittsburg wrote on the petroleum industry in India. To the Chief Commissioner of Assam, and also to Mine Managers on accidents in the mines. On the gold production of Mysore, to officiating Reporter economic products. Accidents at the gold mines in Hyderabad (Deccan). With reference to all accidents reported. On suitable materials, other than iron or steel, for making stemmers for stemming or ramming blasting charges for shots in mines. On winding ropes for sinking pits, to secure safety. On defective winding engine. And, generally, on all matters arising from the inspections, accidents, interviews, requests, reports, etc.

PART II.

DETAILS OF INSPECTIONS MADE, REPORTS SUBMITTED, AND SUMMARIES OF STATISTICS, ETC.

I. Mines inspected and reported on during the year.—

- (1) Bamondiah Mines, Sitarampur, by request of owners. Part of the colliery had recently taken fire and three of the shafts were closed.
- (2) Luchipur pit, Sitarampur, this mine was threatening to collapse.
- (3) Oriental Coal Association's No. 7 Bamondiah mine. There was fear of their cutting through to the mine on fire.
- (4) The Bengal Coal Company's mine at Raneegeunge. A portion of one of the large mine workings had collapsed, and the Agent of the East Indian Railway Company requested me to inspect it, and to report and suggest what precautions might be considered necessary to be taken to secure the safety of the railway line.
- (5) Again inspected the last named mine at the request of the Company's Chief Mining Engineer. I also inspected the following mines belonging to the same Company, at the same request.
- (6) The Bengal Coal Company's Madhupur mine.
- (7) The Bengal Coal Company's Sanctoria Colliery; special attention being given to a mine nearly worked out, and to two hauling inclines where accidents had recently happened.
- (8) The Bengal Coal Company's Laikdee quarry workings; also the Chanch mine; and the same Company's new Kumerdubi mine. Also the same Company's new mines being opened at Sodepur, and near to Barmudah.
- (9) The Damuda Coal Company's Bamondia and Luchipur mines, with reference to a mine fire at the first, and threatened collapse of the other.
- (10) The Bengal Coal Company's Giridih mines at Nos. 15 and 20 pits, pillar workings; and also the mine at No. 30 pit.
- (11) The Bengal Coal Company's Giridih mines at Nos. 21 and 22 pits where there had recently been a very large fall of roof.
- (12) The East Indian Railway Company's Siriabad Colliery to test for fire-damp by a special means.
- (13) The East Indian Railway Company's Jubilee pit, and the No. 7 Bhadooah mine, and also the new sinking.
- (14) The East Indian Railway Company's Nos. 23B, 23D, and 2C, Kurhurbari mines.
- (15) The East Indian Railway Company's incline and shaft workings at the No. 17 Kurhurbari mine. Also the new Jogtiabad sinking pit.

- (16) The Raneegunge Coal Association mine at No. 16 pit, saw especially the dip pillar workings, the dam, and open goaf.
- (17) The East Indian Railway Company's Kurhurbari mine at No. 7 Jogitand, and the incline, No. 1 shaft.
- (18) The Oriental Coal Company's mine.
- (19) The East Indian Railway Company's mine at Nos. 42E, 42D, and two inclines. Also the central pit and the mine workings and pits connected with it.
- (20) Messrs. Mylne and Babu Sasi's Petana, Barakar, mine that collapsed some time previously when four females were said to have been killed.
- (21) The Lakurka Coal Company's mine at Katras.
- (22) Near Sitarampur, No. 3 Bamondiah mine; Sunderchak mine; Burdwan Coal Company's Mouthdi mine; the Mouthdi mine.
- (23) The Bengal Coal Company's mine at No. 15 Kuldiah pit, inspection and investigation of accident. Also the mine at No. 22A pit, where a road was being made through a very heavy fall of roof.
- (24) The Dāmuda Coal Company's Luchipur mine, Nos. 1 and 2 pits, near Sitarampur. And the Oriental Coal Company's mine, where the ground had fallen in and broken down the engine and boiler house.
- (25) Sanctoria. The Bengal Coal Company's mine at the Nos. 2 and 4 inclines. Inspection and investigation of accidents. Also the No. 12 pit, and the room for keeping safety lamps.
- (26) Raneegunge. The Bengal Coal Company's mines at No. 36, 36A, and 29A pits. A further subsidence had taken place, and the Agent of the East Indian Railway Company requested me to again inspect and report.
- (27) Assensole. The Katras Jherria Coal Company's Seebpore mine. Inspection and investigation of accident.
- (28) Sitarampur. Tincouri Das mine. There was a dispute with an adjacent European colliery, a professed fear that they might work through to a mine once on fire and endanger lives; the mine was declared to be very dangerous, and the Magistrate requested me to inspect, report on the mine, and advise him. I found that an injunction had been already granted to prevent the mine being further worked.
- (29) Desherghur. The Equitable Coal Company's mine. Inspection and investigation of a fatal accident by an explosion of fire-damp.
- (30) Near Sitarampur. The Borrea Coal Company's Salanpur colliery, also the Moochipara colliery. The Magistrate requested me to inspect and report to him, saying that the police had reported that the colliery was in such a dangerous state that the working of the colliery should be at once stopped. Three females had recently been killed, at the former mine, by a fall of roof stone; and a miner killed, at the latter mine, by coal falling from a slip.
- (31) Giridih. The East Indian Railway Company's No. 17B mine, Kurhurbari. Inspection and investigation of accident. A miner had been killed by a fall of coal, and the Deputy Commissioner asked me to report to him on the matter as the police and the Magistrate had reported to him that it appeared someone was to blame.

- (32) Assam. I made a thorough inspection and report of all the coal mines owned by the Assam Railways and Trading Company, Limited, and also their other works.

The mines are known as

1. Ledo Valley East,
2. Ledo Valley West.
3. Upper Ledo,
4. Tikak.
5. Namdang.

Owing to the frequent fatal accidents, the Chief Commissioner of Assam requested me to make a thorough investigation of their causes, and report on the best means of lessening the number of accidents and safeguarding workmen's lives.

- (33) Raneegunge. The Bengal Coal Company's mines at Nos. 29, 37 and 44 pits. A further subsidence had taken place, and the Agent of the East Indian Railway Company again asked me to inspect and report, and also compare their plan and mark on it the line of subsidence.

- (34) Desherghur. The Equitable Coal Company's mine at the No. 1 pit. Inspection and investigation of fatal accident from explosion of fire-damp.

2. Number of mines in India—

Up to the month of May returns had only been received for the following mines :—

Mineral.	Number of mines.
Coal mines	28
Mica „	5
Gold „	4
Rock Salt mines	3
Manganese „	1
Graphite „	1
TOTAL	42

or a total of 42 mines, which is only a fraction of the total number of mines, it is therefore quite impossible for me to give the full and correct number of mines working in 1898.

I have repeatedly drawn attention, in my previous Annual reports, to the delay in the returns and, to state it briefly, the very bad effect this had on my reports and the statistics they contained as well as the great delay and trouble this caused me.

I trust this will soon be remedied.

3. Number of persons employed.—

I am unable to give the number of persons employed at the mines for the reasons given above.

4. Output of minerals.—

This is another set of valuable statistics that cannot be given for the reasons given above.

5. Accidents during the year.—

It will be seen from the various Forms given in Part III, especially Form 25 and the Summary of accidents during the last three years, that during the year 1898 there were 43 fatal accidents

reported, and that these caused the loss of 53 lives. Thirty-one accidents below ground caused 41 deaths, and 12 accidents above ground caused 12 deaths.

The deaths as compared with the two previous years were—

Years.	Males.	Females.	TOTALS.
1898	44	9	53
1897	59	18	77
1896	57	9	66

But I have suspicion that all the accidents that happen are not reported.

6. Note on the Mysore Mines report—

As is well known, the Mysore mines are now worked under a local Mines Act or "Mysore Mines Regulation"; the particulars of accidents, etc., except they are very serious, are not now sent to me. The mines are also inspected by a Chief Inspector of Mines for Mysore with Assistant Inspectors, and an annual report, detailing only with the mines in the Mysore State is presented to that Durbar.

I have received the annual report of the Mysore Inspector of Mines for the year 1897, but as I have no particulars more recent than that I think there are sufficient reasons for my not burdening this report with matter so old.

7. A very serious accident in Mysore—

As the most serious accident that has probably ever happened at an Indian mine occurred at one of the Kolar gold mines in the Mysore State, in the year 1897 most serious in point of the number of lives lost, I think it is sufficiently interesting for my putting it on record with a few brief details.

- (1) It happened in the "Trial shaft" of the Champion Reefs gold mine, Kolar gold field, Mysore State, on the 11th September 1897, and caused the loss of 52 lives.
- (2) It happened about 3 P.M., which was the end of the first shift as it was Saturday, the pay day.
- (3) The inclination of the shaft was from 64° to 79° from the horizontal, and all the shafts on the north of this mine had connection with the bottom of this "Trial shaft" at the 225 feet level, and all workmen descending or ascending the mine to work in or near those shafts were required to use the "Trial shaft" at this particular portion.
- (4) The "Trial shaft" was fitted with two ladder-ways. The air went down the shaft, *i.e.*, it acted as a downcast for the ventilation. Six hundred and twenty men, exclusive of contractors, mistris and Europeans were accustomed to come up by the "Trial shaft" at the end of the morning shift. The manholes were 2 ft. X 1½ ft. to 2½ ft. X 2 ft.
- (5) *Cause of accident.*—The cause may be very briefly stated. The manhole at the top of the shaft was fenced round, and this outlet was also in charge of a watchman. Being pay-day, the men from the mine below ground came into the shaft to come up to

the surface, as was customary, a little earlier than was usual except on pay-days. The watchman in charge at the surface, not knowing the custom, prevented any one coming out of the shaft to the surface until the time that was proper on ordinary days. The consequence of this was that the men quickly accumulated in large numbers on the ladders in the shaft, some strove to pass others, the air became noxious by the shaft becoming blocked by human beings with lights burning, some of the lights became extinguished, and there became a mass of almost exhausted human beings struggling on the ladders in a foul atmosphere, and many in the dark. Some fell off the ladders down the shaft and in falling caused others do the same ; a panic was created as might be expected ; the dead and dying were stopped by the manholes from falling further down, and this accumulation of human beings blocked up the air passages with the result that 52 men were found to be dead or dying, although, as soon as the occurrence became known, every effort was made to release the men and to save life. There was an exhaustive enquiry made, the results of which are recorded by the Inspector of Mines.

PART III.
STATISTICS.

RETURN OF MINES AT WORK, AVERAGE NUMBER OF PERSONS EMPLOYED, AND OUTPUT FOR THE YEAR 1898.

Particulars collected from the returns of Form 23.

1	2	3	4	5	6				7	
Situation of Mine,—State, Province, Division or District.	Names or descriptions of minerals wrought.	Number of mines at which each mineral was being worked during December 1898.	State or condition of the minerals as named or described, whether dressed or undressed, etc.	Weight wrought of minerals as named or described.	NUMBER OF PERSONS EMPLOYED AT EACH KIND OF MINE.				REMARKS.	
					BELOW GROUND.		Total below ground.	ABOVE GROUND.		
					Males.	Females.		Males.		Females.
BENGAL PROVINCE— Burdwan Division, Ranigunge Sub-division Burdwan Division, Bunkura Sub-division Chota-Nagpur Division, Hazaribagh District, Giridih Sub-division Sonthal Parganas, Dumka Sub-division Chota-Nagpur Division, Manbhoom District, Gobindpur Sub-division TOTALS	Coal . .	...	Dressed and undressed. Do. . .	...	...	...	...	...	No return received.	
	Do. . .	...	Dressed . Undressed	...	...	...	...	...	Ditto.	
	} Do. . .	{ ...	Do. . .	...	...	...	...	...	Ditto.	
	Do. . .	...	Dressed . Undressed .	...	...	...	...	...	Ditto.	
	} Do. . .	{ ...	Do. . .	...	...	...	...	...	Ditto.	
	Do. . .	...	Dressed . Undressed .	...	...	...	...	...	Ditto.	
	Do. . .	...	Dressed .	...	...	...	...	...	Ditto.	
	Do. . .	...	Undressed .	...	...	...	...	...	Ditto.	
	Do. . .	...	Dressed .	...	...	...	...	...	Ditto.	
	Do. . .	...	Undressed .	...	...	...	...	...	Ditto.	
TOTALS FOR THE BENGAL COAL MINES.										

ASSAM.						No return received. Ditto.
Lakhimpur	Coal .	...	Undressed .	. ...	...	...
Naga Hills	Do. .	...	Do. .	. ...	...	...
TOTAL FOR ASSAM COAL MINES,	Coal . .	...	Undressed .	. ...	...	...
CENTRAL PROVINCES.						
<i>Rewah State.</i>						
Umaria Colliery	Coal . .	5	Dressed .	. Tons cwtls. qrs. 134,725 14 0	1,402	203
Narsingpur District.	Do. . .	3	Do. .	. 22,472 10 0	130	72
Mohpani Colliery	Do. . .	1	Undressed .	. 127,237 coal, and 3,097 tons fire-clay.	851	...
Chanda District.	Do. . .	...	Raw Fire-clay	.	...	...
Warora Colliery	Coal . .	8	Dressed .	. Tons. cwts. 157,198 4	1,532	275
TOTALS FOR THE CENTRAL PROVINCES	Coal . .	1	Undressed .	. 127,237 coal, and 3,097 fire- clay.	...	...
COAL MINES	Coal . .	...	..	.	...	...
PUNJAB.						
<i>Salt Range, Jhelum District.</i>						
Dandot	Coal. . .	1	Dressed .	. Tons, cwt. qrs. 26,988 0 0	721	...
Fidh	Do. . .	1	Do. .	. 47,602 0 0	393	...
Baghanwala	Do. . .	1	Do. .	. 11,272 0 0	127	...
TOTALS FOR THE COAL MINES IN THE	Coal . .	3	Dressed .	. 85,862 0 0	1,241	...
PUNJAB	Coal . .	...	...	.	1,241	...

RETURN OF MINES AT WORK, AVERAGE NUMBER OF PERSONS EMPLOYED, AND OUTPUT FOR THE YEAR 1898—*contd.*

1	2	3	4	5	6						7	
Situation of Mine, State, Province, Division or District.	Names or descriptions of minerals wrought.	Number of mines at which each mineral was being worked during December 1898.	State or condition of the minerals as named or described, whether dressed or undressed, etc.	Weight wrought of minerals as named or described.	NUMBER OF PERSONS EMPLOYED AT EACH KIND OF MINE.						REMARKS.	
					BELOW GROUND.		Total below ground.	ABOVE GROUND.		Total above ground.		Total below and above ground.
					Males.	Females.		Males.	Females.			
HYDERABAD (DECCAN).												
Yellandu, Singareni.	Coal.	6	Dressed and undressed.	394,621 16 0	4,023	996	5,019	1,374	395	1,769	6,788	
TOTAL FOR HYDERABAD (DECCAN).												
BALUCHISTAN.												
Frontier District.												
Khost	Coal.	5	Dressed	10,662 0 0	163	...	163	74	...	74	237	
Shahrig	Do.	1	Do.	5 0 0	...	...	...	1	...	1	1	Colliery closed till again required.
Bolán District.												
Mach Kalat District	Coal	1	Dressed	2,570 0 0	30	...	30	15	5	20	50	
Degari	Do.	1	Do.	11 0 0	...	...	...	...	...	about 4	about 10	Coal with dust.
	Do.	1	Undressed	53 2 0	14	...	14	...	...	...	14	

Quetta District.

Sor Range Hills	Do.	1	Do.	81	4	0	303	...	303	44	...	4	347
TOTALS FOR THE BALUCHISTAN COAL MINES	Coal	10	Undressed	13,248	0	0	516	...	516	133	5	142	658

Tons. cwt. qrs.

The total output of the coal in India
of dressed coal.
of undressed coal.
of dressed and undressed coal.

Total output of coal from all the mines in India .

BENGAL PROVINCE.													
Chota-Nagpur Division, Hazaribagh District, Giridih Sub-division	Mica	...	{ Dressed Undressed }	...	...	...	...	...	...	...	...	...	No returns received. Ditto.
Patna Division, Monghyr District	{ Do. Do. Do. }	...	{ Dressed Undressed Do. }	...	...	...	...	...	...	...	...	...	Ditto. Ditto. Ditto. Ditto.
TOTAL FOR THE BENGAL PROVINCE MICA MINES.	Mica	...	{ Dressed Undressed }	...	...	...	...	...	...	...	...	...	...
MADRAS PROVINCE.													
Nellore District, Kavali Taluk	Mica	2	Dressed	84 lbs.	23	...	23	72	83	155	178	...	...
Nellore District, Atmakur Taluk	Do.	2	Undressed	4,070 "	222	260	482	155	161	316	557	...	...
Nellore District, Gudur Taluk	{ Do. Do. }	...	{ Dressed Do. }	...	...	...	...	...	...	...	...	...	No returns received. Ditto.
Nellore District, Rapur Taluk	Mica	1	Do.	159,063 lbs.	498	183	884	608	721	1,651	2,535	...	...

RETURN OF MINES AT WORK, AVERAGE NUMBER OF PERSONS EMPLOYED, AND OUTPUT FOR THE YEAR 1898—*contd.*

1	2	3	4	5	6						7	
					NUMBER OF PERSONS EMPLOYED AT EACH KIND OF MINE.							
					BELOW GROUND.		Total below ground.	ABOVE GROUND.		Total below and above ground.		
					Males	Females.		Males.	Females.			
Situation of mine, State, Province, Division or District.	Names or descriptions of minerals wrought.	Number of mines at which each mineral was being worked during December 1898.	State or condition of the minerals as named or described, whether dressed or undressed, etc.	Weight wrought of minerals as named or described.							REMARKS.	
HYDERABAD (DECCAN).												
	Gold . .	1	Dressed .	1,895 ozs. of gold	518	...	518	284	182	466	984	
	Do. . .	2	Do.	5,792 Tons of ore.	316	...	316	265	115	380	669	
	Gold . .	3	...	1,895 ozs. of gold. 5,792 Tons of ore.	834	...	834	549	297	846	1,653	
MADRAS PROVINCE.												
	Gold . .	1	Undressed .	Tons. cwt. qrs. 2,854 0 0	240	...	240	125	10	135	375	
PUNJAB PROVINCE.												
Jhelum District.												
	Rock Salt .	1	Undressed .	Tons.cwts.qrs.lbs. 8,308 0 0 0	647	512	1,159	91	10	101	1,260	
	Do.	1	Do.	186 0 0 0	3	2	5	...	...	...	5	
	Do.	1	Do.	303 0 0 0	43	35	78	2	...	2	80	
	Rock Salt .	3	Undressed .	8,797 0 0 0	693	545	1,242	93	10	103	1,345	

Total quantity of salt wrought in India for which returns were received was 8,797 tons of fairly clean salt.

BENGAL PROVINCE.									
Patna Division.									
Monghyr District	Slate	...	...	...	...	...	...	...	No return received.
BENGAL PROVINCE.									
Chota-Nagpur Division.									
Manbhoom District	} Ghooting	...	Undressed	...	...	...	...	...	No return received.
Gobindpur Sub-Division		...	...	...	...	...	...	...	...
MADRAS PROVINCE.									
Vizagapatam District	Manganese	...	1 mine and several quarries.	Dressed	Tons. 64,358	...	...	2,100	3,530
Totals									

2.—RETURNS OF ACCIDENTS, FORM 24.
FALLS IN MINE.

Fatal accidents during the year 1898 from (1)—Falls of roof—stone or coal.

1	2	3	4	5	6	7	8	9	10	11
Date of accident.	Hour of day or night.	Name of the mine.	Situation of mine.	Description of mine or name of mineral wrought.	Name of owner or company.	Names and number of persons killed and whether male or female.	Reputed age.	Occupation.	Cause of accident according to terms of Form 25 and whether above or below ground.	REMARKS ON CAUSE OF DEATH.
(1) 18th February 1898	1 P.M.	Ledo Valley West.	Lakhimpur District, Assam.	Coal	Assam Railways and Trading Co., Ltd.	1 Male. 2 Females. Sunoo (m) Bhudia (f) Sukmeni (r)	25 20 22	Opening chargeman Filler. Do.	Falls in mine.— Fall of roof and side coal.	COAL.—Fall of coal from the top and sides of the large holes made in the roof-coal when pillars are taken out.
(2) 7th March 1898	6-30 P.M.	Kendua Colliery.	Thana Assansol, Burdwan District.	Coal	The Bengal Steel and Iron Co., Ltd.	1 Male. Keshub Bowree	34	Miner	Falls in mine.— Fall of coal from roof.	COAL.—Fall of some of the coal left to form a roof.
(3) 7th May 1898	1 P.M.	Dandot Colliery, Punjab.	Punjab near Khewrah.	Coal	North Western Railway.	1 Male. Mahomed Din	20	Coal miner.	Falls in mine.— Fall of roof.	STONE.—By the fall of a large piece of slate in the ripping, where deceased was working. He lived 6 hours.
(4) 11th June 1898	4 P.M.	Ragda Seebpore Colliery.	Seebpore	Coal	Katras Jheria Coal Co., Ltd.	 1 Male.	23 or so	Miner	Ditto	STONE.—Received fracture of ribs and internal injuries.
(5) 17th June 1898	10 A.M.	7 Bhadoab mine, E. I. Railway, Kurhbari Collieries.	Giridih Sub-Division, Hazaribagh District.	Coal	East Indian Railway Co.	1 Male. Ramsahai Khar.	22	Coal cutter.	Fall of roof stone	STONE.—Deceased went into the open goaf to gather up some timber where the supporting timbers had been withdrawn on the previous day.
(6) 24th February 1898	2-30 A.M.	No. 13 Pit.	Yellandu, Hyderabad State (Deccan).	Coal	Hyderabad (Deccan) Co. Ltd.	Jurakhandhir	40	Coal cutter.	Fall of roof stone	STONE.—Fall from roof on to his chest.

(7) 1st June 1898	10-30 A.M.	No. 13 Pit.	Do.	Do.	Do.	1 Hessala Ryingha. 2 Koya Rajannah. 3 Sundapekhen-diga. 1 Male.	25 30 25	Blowing-stone coolies	Fall of stone	Injured internally. Instantaneous deaths.
(8) 25th July 1898	11 A.M.	Tariah mine	In Tariah Gawan Gade, Hazaribagh District.	Mica	Messrs. E. F. Christien & Co.	Caroo Manzee.	32	Miner	Fall of roof stone	STONE.—A portion of roof in a gallery that the deceased was standing on, fell and carried him with it, injuring his stomach. He lived for 2 hours only.
(9) 4th November 1898	10-30 A.M.	No. 111 Pit, A. Salanpur Collieries.	Salanpur	Coal	Borrea Coal Co., Ltd.	3 Females. Jabona Mayan. Mongli Mayan. Dooli Mayan.	18 15 13	Dust cleaning women	Falls in mine.— Fall of roof. Stone.	STONE.—The three females went through a fence and into a part of the mine that had been fenced off because it was known to be unsafe. Whilst resting at the place some roof-stone fell from a great height and caused severe internal injuries from which they died.
(10) 1st November 1898	10 A.M.	Sanctoria	Sanctoria, Burdwan District	Coal	Bengal Coal Co., Ltd.	1 Male. Madhoo Bowri	48	Miner	Fall of roof stone	STONE.—Some roof-stone fell at the goaf edge and injured deceased, so that he died five days after.

Fatal Accidents during the year 1898 from (2)—Fall of sides—Stone or coal.

(1) 4th January 1898	7 A.M.	Dhoondabad	Sitarampur, Ranigunj Sub-division.	Coal	New Manbhum Coal Company, Limited.	1 Female.	45	Dust-woman	Falls in mine, Fall of sides, stone or coal.	COAL.—Deceased was caught by falling coal.
(2) 7th October 1898	11 A.M.	No. 17 Khurbaree Colliery, East Indian Railway Company.	Girdih, Sub-division Hazaribagh, District Bengal.	Do.	East Indian Railway Company.	1 Male. Dharooa Koeri.	21	Coal cutter	Do.	COAL.—The deceased had gone past the place of accident to get a ladder; and as he was returning with the ladder, a lump of coal fell and killed him.

FALLS IN MINE.

Fatal Accidents during the year 1898 from (3)—Fall of coal from working faces.

1	2	3	4	5	6	7	8	9	10	11
Date of accident.	Hour of day or night.	Name of the mine.	Situation of mine.	Description of mine or name of mineral wrought.	Name of the owner of Company.	Names and number of persons killed and whether male or female.	Reputed ages	Occupation.	Cause of accident according to terms of Form 25, and whether above or below ground.	REMARKS on cause of death.
10th February 1898.	10-30 A.M.	Ledo Valley East	Lakhimpur, Assam.	Coal.	Assam Railways and Trading Company Limited.	1 Male. Bátoo . .	25	Coal-filler.	Falls in mine. Fall of coal from working face.	"A Bump or pluck in the strata dislodged some side coal and it fell on to the deceased."
9th June 1898	6 A.M.	Khooldeah Pits (Nos. 21 and 22) west District.	Giridih . .	Coal . .	Bengal Coal Company Limited.	1 Male . .	27	Miner . .	Do. .	Killed whilst robbing a coal pillar. The coal did not fall from his own working face, but from the part deceased was wrongfully working at.
(3) 22nd July 1898	6-30 P.M.	No. 5 pit, Warora Colliery.	Warora, Central Provinces.	Coal.	Government . .	1 Male. Gangadar Passee.	40	Hewer . .	Falls in mine. Fall of coal from working face.	Coal fell on him.
(4) 8th August 1898	5 A.M.	Upper Ledo Colliery.	Ledo, Assam . .	Do. . .	Assam Railways and Trading Company, Limited.	1 Male. 1 Female. Goyadin . . Jamini . .	27 23	Filler . . Do. . .	Do. .	Fall of roof coal and side coal in working place. About 50 tons of coal was reported to have fallen from a joint which could not previously be detected.
(5) 18th October 1898.	6 P.M. Been at work 7 hours.	Solanpore Collieries.	Solanpore . .	Do. . .	Borrea Coal Company, Limited.	1 Male. Tota Majhi . .	28	Miner . .	Do. .	The coal fell on his back and severed his spine, causing instantaneous death.

IN AND AT SHAFTS.

Accidents during the year 1898 from (7)—Falling into shaft from the surface.

(1)	6th September 1898.	10 P.M.	No. 27 Seebpore Colliery.	Pit.	Seebpore.	Coal.	Karras Jherriah Coal Company, Limited.	Lakhu Bowree.	26 or so.	Khalasi	In and at shafts—Falling into shaft from the surface.	Fracture of head-bones. Whilst regulating a water-pipe valve, at the top of the sinking pit, he fell down; the pit was 75 feet deep.
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Fatal Accidents during the year 1898 from (8)—Falling from a part of the way down.

(1)	14th November 1898.	1-45 P.M.	Wondalli Mine.	Gold	Wondalli (Deccan).	Gold.	Wondalli Deccan Gold Mine Company, Limited.	Sultan Saib.	25 years.	M u c k Cooly.	Falling into sink.	Injuries to the head and face by falling from the landing to the bottom of the shaft or "Sinking."
(2)	30th August 1898	9 P.M.	No. 15 Pit	Coal	Yellandu, Hyderabad (Deccan)	Coal	Hyderabad (Deccan) Co., Ltd.	Lutchoo Janaki.	35	Filler	Fell out of cage whilst ascending.	All his body was injured.
(3)	17th June 1898	6-20 P.M.	Joaktia bad Sinking Shaft.	Coal	Girdih, Hazaribagh.	Coal.	East Indian Railway.	Domer Gope.	25 years.	Sinking Sirdar.	Falling from part of the way down.	Deceased fell about 40 feet as he was descending the sinking pit with explosives for the shots. It was supposed that he was examining the sides of the shaft and over-balanced himself and fell out of the bucket.

Fatal accidents during the year 1898 from (10)—Things falling from a part of the way down.

(1)	13th October 1898	2 P.M.	No. 1 Bhaga	Coal mine	Bhaga Jherriah	Coal mine	Jherriah Colliery Co., Ltd.	Bhatto Rai.	24	Coal-cutter	Something fell from a part of the way down the shaft.	Deceased had begun to act as the hooker-on when something fell from somewhere and killed him; what or where from is not apparently known.
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MISCELLANEOUS BELOW GROUND.

Fatal accidents during the year 1898 from (12)—Explosions of firedamp.

1	2	3	4	5	6	7	8	9	10	11
Date of accident.	Hour of day or night.	Name of Mine.	Situation of Mine.	Description of mine or name of mineral wrought.	Name of owner or Company.	Name and number of the persons killed and whether male or female.	Reputed age.	Occupation.	Cause of accident according to terms detailed on Form 25, and whether above or below ground.	REMARKS on cause of death.
(1) 30th September 1898.	9-30 A.M.	Deshergur, Pit No. 1.	Deshergur	Coal	Equitable Coal Co., Ltd., Burdwan.	1 Male. Rewa Roy	38 or 39	Miner	Explosion of fire-damp.	Explosion of fire damp. It appeared that the deceased and three other miners had moved the compressed air-pipe by which the place was being ventilated; fire damp accumulated in a part of the roof that was higher than other parts and it ignited at their open lamps. The moving of the air-pipe was given as the cause of the fire-damp accumulating. There was only a very small explosion.
(2) 16th December 1898.	About 1 A.M.	Deshergur, Pit No. 1.	Deshergur	Coal.	Equitable Coal Co., Ltd., Burdwan.	2 Males. Darsum Looth, etc.	About 25 years.	Miners	Ignition of gas.	The place was ventilated by compressed air and the deceased and two other miners were said to have closed the cock or tap and so cut off the air from their working-place, where they were using naked lights. The rest of the circumstances were very similar to the previous accident. I found that a fair quantity of fire damp was given off from the coal, and soon accumulated when the tap was shut, but the place was constantly clear and safe when the tap was open and air going in. Only one of the men died at the time, but another died in a few days.

Fatal accidents during the year 1898 from (14)—By explosives.

(1)	23rd September 1898	2 P.M.	Wondalli Gold Mine.	Wondalli Hyderabad (Deccan).	Gold	The Wondalli-Deccan Gold Mines, Ltd.	2 Males. Gopal Ramjee Garush, and Koonkoondy Wanuppoh.	Unknown	Machine handle-men.	By explosives below ground.	Both men were fatally wounded by the explosion; one man died after two days, and the other lived about a week.
(2)	18th September 1898	2-30 A.M.	Do.	Do.	Do.	Do.	1 Male. Madar Saib	Ditto	Blaster	Ditto	Fatally injured by explosion; died soon after.
(3)	30th November 1898	8-30 P.M.	Do.	Do.	Do.	Do.	2 Males. Jotta Hanumah, and Powrayah.	30 years	Drill coolies	Ditto	Ditto.

Fatal accidents during the year 1898 from (15)—Irruptions of water, and falling into water.

(1)	19th February 1898	11 A.M.	Desherghur, Pit No. 1.	Barakar, Rani-gunj Sub-Division.	Coal	Equitable Coal Co., Ltd.	1 Male. Mr. R. Brown.	31	Assistant in charge of Colliery.	Irruptions of water and falling into water.	Deceased with assisting coolies was working at the pump, near the pit bottom, when he fell off a plank into the sump that was nearly full of water. The sump was not deep, but it was supposed that his head was badly injured.
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Fatal accidents during the year 1898 from (16)—On inclined and engine-planes.

(1)	27th August 1898	9 P.M.	Sanctoria Coal Mine.	Burdwan District.	Coal	Bengal Co., Ltd.	1 Female	16	Dustwoman	On inclined and engine-planes.	The accident happened on No. 4 haulage incline. The gang-rider stated that the deceased was walking along side of the moving gang of tubs, and holding on to them, when she slipped and fell and was crushed by the tubs. The gang-rider was punished for allowing the woman to travel on the incline with the tubs.
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MISCELLANEOUS BELOW GROUND

1	2	3	4	5	6	7	8	9	10	11
Date of accident.	Hours of day or night.	Name of Mine.	Situation of Mine.	Description of mine or name of mineral wrought.	Name of owner or Company.	Name and number of the persons killed, and whether male or female.	Reputed age.	Occupation.	Cause of accident according to terms of Form 25, and whether above or below ground.	REMARKS on cause of death.
(2) 18th January 1898	8-30 A.M.	No. 15 Pit	Yellandu, Hyderabad State. (Deccan.) Terminus of 16 miles branch railway from Dornakai on the N. G. S. Ry. in the District of Warangal.	Coal.	Hyderabad Co. Ltd. (Deccan).	1 Male. Chotalal.	14	Gate-keeper	On inclined and engine-planes.	"Struck by a truck underground. Died on 23rd January."
(3) 18th January 1898	9-30 P.M.	No. 14 Pit	Ditto	Coal.	Ditto	1 Male. Maranpayna Sayeb.	35	Trammer	Do.	"Lorries ran over him. Died 20th January 1899."
(4) 17th September 1898	8 P.M.	No. 15 Pit	Ditto	Coal.	Ditto	Saibu	12	Gate-keeper.	Do.	"By tubs. Died on the spot."

Fatal accidents during the year 1898 from (17)—By trams or tubs, but not on inclined or engine-planes.

6th October 1898	2-15 P.M.	Singareni Coal Mine.	Yellandu or Yellandahapad.	Coal.	Hyderabad (Deccan) Co., Ltd.	1 Male. Kannore Peeradu	Unknown.	Water Bailer	By trams or tubs.	Crushed by tubs.
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ON SURFACE.

Fatal accidents during the year 1898 from (20)—By Machinery.

(1)	19th January 1898	10-30 A.M.	Mohpani No. 24 shaft.	Mohpani C. P.	Coal	The Nerbudda Coal and Iron Co., Ltd.	1 Male. Mojilal.	18	Engine boy	On surface. By machinery.	Not known how he got into the engine; he was not oiling at the time. It was thought that he might have fallen in a fit to which he was afterwards said to be subject.
(2)	8th June 1898	6.15 P.M.	Bottom Pit	Yellandu, Hyderabad State (Deccan.)	Ditto	Hyderabad (Deccan), Co., Ltd.	1 Male. Seepati.	12	Stone picker	Caught in the picking belt.	Lower part of body badly injured. Died from exhaustion.

Fatal accidents during the year 1898 from (22)—On railways or tramways belonging to mine.

(1)	15th January 1898	7-30 A.M.	Upper Ledo.	Lakhimpore District, Assam.	Coal	Assam Railways and Trading Company, Ltd.	1 Female. Amolia.	30	Cleaner of dirt out of the coal.	On surface.—On railway and tramways belonging to mine.	Deceased was killed on the lower surface incline by run-away tubs due to coupling chain breaking. It was against rules and orders not to be well clear of the line when tubs are in motion.
(2)	16th May 1898	8-30 A.M. Been at work 2 hours.	Saltanpore Colliery.	Saltanpore, Ranigunj Sub-Division.	Ditto	Borea Coal Company, Ltd.	1 Male. Karoo Noonnia.	70	Cooly	Ditto	Killed on the tramway line.
(3)	20th December 1898	2-30 A.M.	Mayo Mine	Khewra, Jhelum District, Punjab.	Rock Salt	Government Mine.	1 Male. Mahomad, son of Mir Hussain.	30 years	Trammer	On surface.—On tramway belonging to the mine.	An empty truck was allowed to run away down the tram-line from the siding near to the mine; this runaway truck collided with another empty one that was being pushed upwards by deceased and two other trammers. He appeared not to be very seriously injured, but he refused to allow the hospital doctors to perform an operation that had become necessary owing to the injuries being badly affected by a chill.
(4)	1st May 1898	1 A.M.	No. 15 Pit	Yellandu, Hyderabad State (Deccan.)	Coal	Hyderabad (Deccan) Co., Ltd.	1 Male Bista Beemadu	18	Stone picker	By Locomotive	Run over by colliery locomotive. Died from loss of blood.

ON SURFACE.

Fatal accidents during the year 1898 from (23)—Miscellaneous.

1	2	3	4	5	6	7	8	9	10	11
Date of accident.	Hour of day or night.	Name of the mine.	Situation of mine.	Description of mine or name of mineral wrought.	Name of owner or Company.	Names and number of persons killed and whether male or female	Reputed age.	Occupation.	Cause of accident according to terms of Form 25, and whether above or below ground.	Remarks on cause of death.
(1) 11th June 1898	2 A.M.	Brehmanbararee Colliery.	Jheriah; Pergunah Jheriah. District Manbhoom.	Coal	East Indian Coal Co., Ltd.	<i>1 Male.</i> Dhananjay Mahata.	About 41 years.	Hookman, on surface of incline.	On surface.—Miscellaneous.	On the top of the mine incline. Deceased was employed at the top of the incline to unhook the hauling rope when the tubs reached the top. He was found alone and between the tubs but could give no account of how he got there.
(2) 5th March 1898	3 P.M.	Gourangdi	Gourangdi	Ditto	Burrakur Coal Company, Limited.	<i>1 Male.</i> Ojodhya moochi	About 16 years.	Surf ace cooly.	Ditto	The deceased was working in a stooping position and pulled at an iron frame to enable himself the easier to stand erect: this caused the frame to fall on him killing him outright.
(3) 19th July 1898	9 A.M.	D. Mica mine	Padalakur Reserved Forest, Rapur Taluk, Nellore District, Madras Presidency.	Mica	Anuchur Subba Naidu of Indukurpet, Nellore Taluk, Nellore District.	<i>1 Male.</i> Shaik Khajamiya.	25	Cooly	Ditto	Deceased fell on a heap of stones whilst carrying a basket full of stones, mud, etc., from a mound of earth near the edge of the mine. He had been subject to epileptic fits for about a year.
(4) 30th July 1898	1 o'clock P.M.	Baghanwalla Colliery.	Baghanwalla, Jhelum District, Punjab.	Coal	North Western Railway.	<i>1 Male.</i> Din	24	Ditto	Ditto	Deceased was walking along the bottom of a nullah, that was a roadway, when a landslip caused earth to fall and bury him.
(5) 23rd September 1898.	7 P.M.	O. W. Field Mohpani Colliery.	Mohpani, Central Provinces.	Ditto	Nerbudda Coal and Iron Co., Ltd.	<i>1 Male.</i> Narain	24	Ditto	Ditto	By machinery above ground. Whilst hauling a boiler up rising ground the rope broke and the boiler dragged down the winch over the deceased's leg, and other parts of his body were injured.
(6) 16th December 1898	Between 5 and 6 P.M.	Boodini Gold Mine.	Boodini	Gold	The Hyderabad (Deccan) Company.	<i>1 Male.</i> Abbaji Rao	Unknown	Driver and Fitter.	Ditto	Drowned in a well belonging to the mine.

3.—NUMBER OF PERSONS KILLED BY MINING ACCIDENTS IN INDIA DURING THE YEAR 1898, CLASSIFIED AS TO
PROVINCE, MINERAL, ETC.

No.	STATE, PROVINCE, DIVISION, DISTRICT, OR SUB-DIVISION.	Mineral.	FALLS IN MINE.				IN AND AT SHAFT.								MISCELLANEOUS BELOW GROUND.								ON SURFACE.					GROSS TOTALS.				
			Fall of roof—stone, or coal.	Fall of sides—stone, or coal.	Fall of coal from working face.	Total falls in mine.	Overwinding.	Ropes and chains breaking.	Whist ascending or descending by machinery.	Falling into shaft from the surface.	Falling from a part of the way down.	Things falling from surface.	Things falling from a part of the way down.	Miscellaneous.	Total in and at shafts.	Explosion of fire- damp.	Suffocation by gases	By explosives.	Irruptions of water, and falling into water.	On inclined and engine planes.	By trams or tubs, but not on inclined or engine planes.	By machinery.	By other causes.	Total miscellaneous below ground.	Total below ground.	By machinery.	Boilers, or steam- pipes bursting.		On railways or tramways belong- ing to mine.	Miscellaneous.	Total on surface.	
BENGAL.																																
Burdwan Division.																																
1	Burdwan District, Raniganj Sub-division.	Coal	6	1	1	8	..	..	..	..	..	..	1	..	..	..	1	3	..	..	1	..	..	..	5	14	..	..	1	1	2	16
Chota-Nagpur Division.																																
2	Hazaribagh District, Giridih Sub-division.	"	1	1	1	3	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	4	..	..	..	..	4	
Chota-Nagpur Division.																																
3	Manbhum District, Goindpur Sub-division.	"	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	1	2	..	..	1	1	2	
CENTRAL PROVINCES.																																
4	Mohpan . . .	"	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	1	2	2	
Chanda District.																																
5	Warora . . .	"	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	
Rewah State.																																
6	Umaria . . .	"	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	

NUMBER OF PERSONS KILLED BY MINING ACCIDENTS IN INDIA DURING THE YEAR 1898—*contd.* India.

No.	STATE, PROVINCE, DIVISION, DISTRICT, OR SUB-DIVISION.	Mineral.	FALLS IN MINE.				IN AND AT SHAFTS.								MISCELLANEOUS BELOW GROUND.								ON SURFACE.				GROSS TOTALS.					
			Fall of roof—stone, or coal.	Fall of sides—stone, or coal.	Fall of coal from working face.	Total falls in mine.	Overwinding.	Ropes and chains breaking.	Whist ascending or descending by machinery.	Falling into shaft from the surface.	Falling from a part of the way down.	Things falling from surface.	Things falling from a part of the way down.	Miscellaneous.	Total in and at shafts.	Explosion of fire- damp.	Suffocation by gases.	By explosives.	Irruption of water and falling into water.	On inclined and engine planes.	By trams or tubs, but not on inclined or engine planes.	By machinery.	By other causes.	Total miscellaneous below ground.	Total below ground.	By machinery.		Boilers or steam- pipes bursting.	On railways, or tramways, belong- ing to mine.	Miscellaneous.	Total on surface.	
7	PUNJAB. Jhelum District .	Coal .	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	1	1	2	9
8	BALUCHISTAN. Baluchistan District .	"	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9	HYDERABAD (DECCAN). Yellandu, Singareni .	"	2	..	..	2	..	..	1	..	..	..	1	..	..	..	..	..	3	1	..	..	4	7	1	..	1	..	..	..	2	9
10	BURMA (UPPER). Central Division, Shwebo District .	"	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11	ASSAM. Cherrapunji .	"	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12	Ledo Valley and Tilkak COAL MINES TOTALS .	Coal .	3	2	6	21	..	..	1	2	..	1	..	..	..	..	..	1	4	1	..	..	9	34	2	..	3	4	9	7	43	
13	MADRAS North Arcot District .	Gold .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
14	Vizagapatam District .	Manga- nese ore.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

[illegible]

4.—SUMMARY OF ACCIDENTS DURING 1898, 1897 and 1896.

Number of males and females killed, classified as to causes.

No.	Causes of accidents in terms of "Form 25" and whether above or below ground.	DEATHS 1898.			DEATHS 1897.			DEATHS 1896.			
		Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	
	I.—Falls in Mine.										
1	Fall of roof—stone, or coal,	9	5	14	23	3	26	7	5	12	
2	Fall of sides—stone, or coal	1	1	2	...	...	...	11	...	11	
3	Fall of coal from working face	5	1	6	6	3	9	2	...	2	
	TOTALS FROM FALLS IN MINE	15	7	22	29	6	35	20	5	25	Falls in Mine.
	II.—In and at Shafts.										
4	Overwinding	...	...	...	...	...	...	...	...	...	
5	Ropes and chains breaking	...	...	...	...	...	...	...	...	...	
6	Whilst ascending or descending by machinery	...	...	...	1	...	1	...	1	1	
7	Falling into shaft from the surface	1	...	1	1	...	1	4	...	4	
8	Falling from a part of the way down	3	...	3	4	...	4	...	...	...	
9	Things falling from surface	...	...	...	...	...	...	...	...	...	
10	Things falling from a part of the way down	1	...	1	...	...	...	1	...	1	
11	Miscellaneous	...	...	...	...	...	...	...	...	...	
	TOTALS IN AND AT SHAFTS	5	...	5	6	...	6	5	1	6	In and at shafts
	III.—Miscellaneous Below Ground.										
12	Explosion of fire-damp	3	...	3	4	...	4	3	...	3	
13	Suffocation by gases	...	...	...	1	...	1	1	...	1	
14	By explosives	5	...	5	4	1	5	3	...	3	
15	Irruptions of water, and falling into water	1	...	1	4	...	4	7	...	7	
16	On inclined and engine planes	3	1	4	4	4	8	2	1	3	
17	By trams or tubs, but not on inclined or engine planes	1	...	1	...	...	...	5	2	7	

SUMMARY OF ACCIDENTS DURING 1898, 1897 and 1896—contd.

Number of males and females killed, classified as to causes—contd.

No.	Causes of accidents in terms of "Form 25," and whether above or below ground.	DEATHS 1898.			DEATHS 1897.			DEATHS 1896.			
		Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	
	III.—Miscellaneous Below Ground—contd.										
18	By machinery . . .	...	...	...	...	..	...	...	...	...	
19	By other causes . . .	...	...	...	1	1	2	2	...	2	
	TOTALS MISCELLANEOUS BELOW GROUND . . .	13	1	14	18	6	24	23	3	26	Miscellaneous below ground.
	TOTALS BELOWGROUND . . .	33	8	41	53	12	65	48	9	57	Totals below ground.
	IV.—On surface.										
20	By machinery . . .	2	...	2	...	...	...	...	...	...	
21	Boilers, or steam pipes bursting . . .	...	...	...	...	...	...	...	...	...	
22	On railways, or tramways belonging to mine . . .	3	1	4	2	...	2	5	...	5	
23	Miscellaneous . . .	6	...	6	4	6	10	4	...	4	
	TOTALS ON SURFACE	11	1	12	6	6	12	9	...	9	Totals on surface.
	GROSS TOTALS BELOW AND ABOVE GROUND . . .	44	9	53	59	18	77	57	9	66	Gross Totals.

5.—Accidental deaths in each district for each mineral, for 1898.*Deaths caused by accidents at Mines in India during the year 1898, classified for districts and for minerals.*

No.	DISTRICTS, ETC.	Description of mine.	BELOW-GROUND.		ABOVE-GROUND.		Total deaths.	Gross total of deaths for each kind of mine.	REMARKS.
			Males, deaths.	Females, deaths.	Males, deaths.	Females, deaths.			
	BENGAL.								
	<i>Burdwan Division.</i>								
1	Burdwan District, Ranigunj Sub-division .	Coal .	9	5	2	...	16		
	<i>Chota-Nagpur Division.</i>								
2	Hazaribagh District, Giridih Sub-division .	„ .	4	...	...	...	4		
3	Manbhum District, Gobindpur Sub-division	„ .	1	...	1	...	2		
							22	22	Bengal coal.

*Deaths caused by accidents at Mines in India during the year 1898,
classified for districts and for minerals.*

No.	DISTRICTS, ETC.	Description of mine.	BELOW-GROUND.		ABOVE-GROUND.		TOTAL DEATHS.	Gross total of deaths for each kind of mine.	REMARKS.
			Males, deaths.	Females, deaths.	Males, deaths.	Females, deaths.			
	PUNJAB.								
20	Jhelum District . .	Salt .		...	1	...	1	1	Punjab. Salt.
21	Bannu District . .	" .	...	...	...	...	...	...	
	RAJPUTANA.								
22	Ulwar State . .	Stone .	...	...	...	...	...	•	
	BURMA (UPPER). <i>Northern Division.</i>								
23	Ruby Mines District .	Rubies, sapphires and spinels	33	8	11	1			
	TOTALS .		41		12		Total .	53	

6.—Remarks on the fatal accidents at Indian mines during the year 1898.

The following are some of the most important facts that are worth repeating in various forms, and observations that may be made, in order to note and draw attention to matters that should not be overlooked.

1. Fatal accidents.—

The total number of *fatal accidents* reported during the year 1898, excluding those at the Mysore mines, amounted to 43, or 11 less than happened in the previous year.

2. Lives lost.—

The total number of lives lost was 53, or 26 less than during the previous year.

To repeat, notices were received of 43 accidents that caused the loss of 53 lives.

3 Notices of fatal accidents.—

I still think that notices are not sent of all the fatal accidents that happen; all the mine-owners, agents, and managers do not yet know of the circular letter in which the Government of India requested that such notices should be sent to me within 24 hours of the occurrence of a fatal accident. I quite recently heard of accidents that had happened months before, but were not reported to me, and the owners and managers readily gave me information and helped me to investigate. They promised that they would in future send an early notice in all cases, and said they did not know that they were expected to send such notices.

4. The number of lives lost below-ground was 41, and above-ground 12, making a total of 53 lives lost.—

As compared with previous years, there were 77 lives lost in 1897 and 66 in the year 1896.

The foregoing, including the particulars of males and females, are shown in the following table:—

	Below-ground.	Above-ground.	TOTALS.
Males	33	11	44
Females	8	1	9
TOTALS	41	12	53

5. Principal causes of the accidents,—

Last year, in my Annual Report for 1897, I said that "The principal source of accidents was falls of roof; these caused 26 deaths, or over 34 per cent. of the total deaths, and these 26 deaths were caused by 10 separate accidents." Then I showed whose duty it was to prevent falls of roof, and the responsibility for such accidents followed from that. Again, during the year 1898, out of a total of 53 deaths 14, or 26·4 per cent. of the deaths were caused by falls of roof; the further particulars show that of the 14 deaths 9 were males and 5 females, and they were caused by 10 separate accidents, thus—

2 accidents from falls of roof coal caused 4 deaths.

8 " " " roof stone " 10 "

10 accidents from falls of roof. 14 deaths.

I would like to again draw attention to my remarks on these matters at pages 116 to 118 of my Annual Report for 1897.

Falls of side—

There were 2 deaths, one male and one female, by falls of side coal.

There were no accidents from this cause in 1897, but there were 11 deaths in 1896.

Fall of coal from working face—

There were six lives lost from this cause, five males and one female.

The accidents from this cause are recorded quite separately from those caused by falls of roof and sides generally, because the 'working face' is the part where the workmen (miners or coal-cutters) work at and loosen the coal; it is the part of the mine that is directly under the miner's own care, he changes its position and condition regularly; if the 'working face' becomes unsafe the miner has probably contributed to make it so and, consequently, accidents from falls of coal from the working faces greatly depend on the care or carelessness of the workmen themselves. This statement does not so uniformly apply to any other class of accidents, nor does it apply so much to females as to males, because females have never charge of a working face, and seldom work at one in the sense that men do; I, therefore, look for some special explanation when a female is killed from this cause. The accident, by which a female was killed from this cause last year, happened in Assam where the circumstances are special, and the coal was said to have fallen from a joint that could not possibly be detected before the accident.

The total number of deaths from falls in mines were 22, or 41.5 per cent. of the total 53. In other words, 15 males and 7 females or 22 lives were lost by 17 accidental falls of coal and stone in mines.

6. Accidents in and at shafts caused the loss of 5 lives, all males.—

This number appears somewhat large when account is taken of the large use made of inclines at Indian mines, or the comparatively little use made of shafts.

7. Explosions of firedamp.—

There were 3 lives lost by 2 explosions of firedamp; and in each of the years 1897 and 1896 there were 4 lives lost by explosions of firedamp, and 1 by suffocation by noxious gas.

I would again call attention to my remarks on firedamp, and allied subjects, in my last and previous reports.

There were also 5 lives lost by explosives, these were all caused by 3 accidents that happened when blasting or preparing to fire shots at the Wondali gold mine, Hyderabad (Deccan). Several of the deceased appear to have received their injuries by the material shot off by the blast.

8. Falling intowater.—

An assistant manager lost his life by falling, from where he was assisting mistris, into a sump nearly full of water. The sump is the part of the shaft that is sunk below the coal seam for the collection of the mine water and convenience of pumping the water to the surface. The deceased only fell a short distance, and it appears that his life might have been saved if he had not caught and injured his head whilst falling, or if the men that were present had got him out of the hole and water at once instead of having hurried up the shaft for some one else to have come and got him out. I often hear very bad reports of the native workmen either refusing or for some reason omitting to give help to the injured, and help that could easily have been rendered and such very necessary and first aid that would have made all the difference between life and death. I sincerely trust that the time may be very short during which it may be said that any miner, or any one in any way really connected with mines has not done all he could to relieve pain and save life.

9. There were 12 lives lost on the surface in connection with mines, 11 males and 1 female.

10. Accidents during the day, and during the night.—

	DAY.		NIGHT.	
	From 6 A.M. to 12 noon.	From 12 noon to 6 P.M.	From 6 P.M. to 12 midnight.	From 12 midnight to 6 A.M.
Number of accidents . .	19	11	8	5

It may be observed that the bulk of the accidents happened in the forenoon and afternoon, though 8 happened between 6 P.M. and midnight which is a time that great numbers of coal-cutters and

coal and dust-carriers are usually at work, and the people working at this time are probably made up, to a large extent, of those who live long distances from the mine and so only come to work about three times in the week but work a double shift while they are at the mine, these being the so-called workers for 24 hours.

11. The number of Mining Companies at whose mines accidents happened.

There were accidents at mines belonging to 19 companies, and the total 43 accidents were made up of 36 at coal mines, 4 at gold mines, 2 at mica mines, and 1 at a rock salt mine. As to the persons killed by these accidents, 9 of the companies had each 1 person killed, 3 of the companies had each 2 persons killed, 2 companies had each 3 persons killed, 1 company had 4 persons killed, and 1 had 5 persons killed, and 2 of the companies had each 7 persons killed, and 1 company had 9 persons killed. The 4 persons were killed at Sanctoria near Barakar, the 5 persons were killed in coal mines near to Sitarampur, 7 persons were killed in the Ledo Valley coal mines, Assam, and the other 7 were killed at the gold mines in Hyderabad (Deccan), and the 9 were killed at the Yellandu coal mines Hyderabad (Deccan).

There appears to be a general and all round reduction of accidents as compared with previous years, but the number of accidents in the Hyderabad mines were notably great.

12. Ages of the persons killed.—

Of the total 44 males killed, they were almost all grown up and over 20 years of age, the exceptions being 1 of 16 years of age, and 1 of 18 years; and the age of 1 was given as 70 years. Of the 9 females killed, 3 of them were rather young, being 13, 15, and 16 years of age respectively, the remainder were grown women but their ages appear to be generally lower than those of the males.

13. A short summary table of the causes of accidents and deaths.—

CAUSES OF THE ACCIDENTS.		Number of accidents.	Persons killed.
BELOW-GROUND—			
1. Fall of roof	{ Stone	8	10
	{ Coal	2	4
2. Fall of sides	{ Stone	...	...
	{ Coal	2	2
3. Fall of coal from working face		5	6
7. Falling into shaft from the surface		1	1
8. Falling from a part of the way down		3	3
10. Things falling from a part of the way down		1	1
12. Explosion of firedamp		2	3
14. By explosives		3	5
15. Irruptions of water, and falling into water		1	1
16. On inclined and engine planes		2	4
17. By trams or tubs, but not on inclined or engine planes		1	1
TOTAL BELOW-GROUND		31	41

CAUSES OF THE ACCIDENTS.	Number of accidents.	Persons killed.
ON SURFACE—		
20. By machinery	2	2
22. On railways or tramways belonging to mine	4	4
23. Miscellaneous	6	6
TOTAL ON SURFACE .	12	12
TOTAL BELOW-GROUND AND ABOVE-GROUND .	43	53

It will be noticed that accidents did not happen under all the heads of causes as classified in Form 24, but only under 14 of the total 23 heads of causes.

**7.—PARTICULARS OF ALL MINES NEWLY STARTED IN THE DISTRICTS OF HAZARIBAGH AND MANBHOO IN THE
CHOTA NAGPUR DIVISION DURING THE HALF-YEAR ENDING 30TH JUNE 1898.**

Serial Number.	Name of mines, started.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mines, (State, Province, Division or District).	Nearest or most convenient Railway or other Station.	Distance from Station.	Means available for getting to mine from Station.	Minerals worked.	REMARKS.
STATEMENT OF MINES NEWLY STARTED.									
HAZARIBAGH DISTRICT.									
Mica Mines in Government Estate.									
1	Serseria .	Babu Durga Podo Das	Koderma .	Koderma, Koderma P. S.	Giridih .	60 miles .	Push or Palki.	Mica.	
2	Lalki .	Ditto	Ditto	Ditto .	Ditto .	Ditto .	Ditto .	Do.	
3	Mohanaria .	Ditto	Ditto	Ditto .	Ditto .	Ditto .	Ditto .	Do.	
4	Hararia .	Ditto	Ditto	Ditto .	Ditto .	Ditto .	Ditto .	Do.	
5	Godbia .	Ditto	Ditto	Ditto .	Ditto .	Ditto .	Ditto .	Do.	
6	Terea .	A. M. Gow Smith Esq.	Ditto	Koderma .	Ditto .	Ditto .	Ditto .	Do.	
7	Tooria .	Ditto	Ditto	Ditto .	Ditto .	Ditto .	Ditto .	Do.	
8	Tiloo .	Ditto	Ditto	Ditto .	Ditto .	Ditto .	Ditto .	Do.	
9	Piara .	Ditto	Ditto	Ditto .	Ditto .	Ditto .	Ditto .	Do.	
10	Bishadhar .	Ditto	Ditto	Ditto .	Ditto .	Ditto .	Ditto .	Do.	
11	Dhawakhad .	Ditto	Ditto	Ditto .	Ditto .	Ditto .	Ditto .	Do.	
12	Karma .	Ditto	Ditto	Ditto .	Ditto .	Ditto .	Ditto .	Do.	
13	Nannakhad .	Ditto	Ditto	Ditto .	Ditto .	Ditto .	Ditto .	Do.	
14	Hurha .	Ditto	Ditto	Ditto .	Ditto .	Ditto .	Ditto .	Do.	
15	Choolo .	Babu Tarini Chatterjee.	Ditto	Koderma, Koderma P. S.	Ditto .	Ditto .	Ditto .	Do.	
16	Kaio .	Prosad Ditto	Ditto	Ditto .	Ditto .	Ditto .	Ditto .	Do.	

PARTICULARS OF ALL MINES NEWLY STARTED IN THE DISTRICTS OF HAZARIBAGH AND MANBHUM IN THE CHOTA NAGPUR DIVISION
DURING THE HALF-YEAR ENDING 30TH JUNE 1898—*contd.*

No. in Serial	Name of mines started.	Name of Owner or Company.	Mine address of Owner of Company.	Situation of mines (State, Province, Division, or District).	Nearest or most con- venient railway or other Station.	Distance from Station.	Means available for getting to mine from Station.	Mineral worked.	REMARKS.
STATEMENT OF MINES NEWLY STARTED— <i>contd.</i>									
HAZARIBAGH DISTRICT— <i>contd.</i>									
<i>Mica Mines in Government Estate—contd.</i>									
82	Daghia .	Messrs. F. F. Chrestien and Co.	Tisree, <i>vide</i> Bhurai .	Koderma, Koderma P. S.	Giridih .	60 miles	Push or Palki.	Mica.	
83	Kakuria .	Ditto .	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.	
84	Jhagrahia .	Ditto .	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.	
85	Kutkutwa .	Ditto .	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.	
86	Binama .	Ditto .	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.	
87	Salia II .	Ditto .	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.	
88	Kendua .	Ditto .	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.	
89	Bhelwa .	Ditto .	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.	
90	Aglagoa .	Ditto .	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.	
91	Dumeria .	Ditto .	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.	
92	Baria .	Ditto .	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.	
93	Sugi .	Ditto .	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.	
94	Pataiha .	Ditto .	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.	
95	Hatgaroa .	Ditto .	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.	
96	Ghaterowa .	Ditto .	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.	
97	Kutkutoa .	Ditto .	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.	
98	Amba-a .	Ditto .	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.	

99	Paniailhia	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Do.
100	Gambharia	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Do.
101	Bhura	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Do.
102	Bihhua	.	.	E. M. Floyd, Esq.	.	.	Koderma	.	.	Ditto	.	.	Ditto	.	.	Do.
103	Burhia	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Do.
104	Dagia	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Do.
105	Lilowa	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Do.
106	Sijua	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Do.
107	Gowramaran	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Do.
108	Cheerki	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Do.
109	Behareethori	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Do.
110	Dighakhad	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Do.
111	Booteria	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Do.
112	Karipahari	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Do.
113	Sirsiria	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Do.
114	Hataria	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Do.
115	Karipahri	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Do.
116	Kusumbha	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Do.
117	Satunrati	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Do.
118	Jamandaho	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Do.
119	Mowtand	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Do.
120	Sarlahi	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Do.
121	Barakola	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Do.
122	Hataria	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Ditto	.	.	Do.

**PARTICULARS OF ALL MINES NEWLY STARTED IN THE DISTRICTS OF HAZARIBAGH AND MANBHUM IN THE CHOTA NAGPUR DIVISION
DURING THE HALF-YEAR ENDING 30TH JUNE 1898—contd.**

Serial Number.	Name of mines started.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mines (State, Province, Division, or District.)	Nearest or most con- venient Railway or other Station.	Distance from Station.	Means available for getting to mine from Station.	Minerals worked.	REMARKS.
STATEMENT OF MINES NEWLY STARTED—contd.									
HAZARIBAGH DISTRICT—contd.									
<i>Mica Mines in Government Estate—contd.</i>									
123	Barabarasakhad	E. M. Floyd, Esq.	Koderma	Koderma, Koderma P.S.	Giridih	60 Miles	Push	Mica	
124	Kuderkatwa	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.	
125	Lalki	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.	
126	Satuakhad	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.	
127	Sarlahia	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.	
128	Hookaporan	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.	
129	Naktahia	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.	
130	Paproo	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.	
131	Paporla	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.	
132	Serseria	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.	
133	Busrakhad	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.	
134	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.	
135	Kuderkatooa	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.	
136	Dagahia	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.	
137	Barhoa	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.	
138	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.	
139	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.	

No.	Name	Owner	Distance	Product	Quantity	Remarks
181	Sugia	Ditto	Ditto	Ditto	Ditto	Do.
182	Gowchora	Babu Jugul Kishore Rov.	Ditto	Ditto	Ditto	Do.
183	Daghia	Ditto	Ditto	Ditto	Ditto	Do.
184	Chilla	Ditto	Ditto	Ditto	Ditto	Do.
185	Lachmania	Babu Gopi Nath Bysack.	Ditto	Ditto	Ditto	Do.
186	Tesrakhad	Ditto	Ditto	Ditto	Ditto	Do.
187	Pasrakhad	Ditto	Ditto	Ditto	Ditto	Do.
188	Harhariakhad	Ditto	Ditto	Ditto	Ditto	Do.
189	Bharia	Ditto	Ditto	Ditto	Ditto	Do.
190	Margoa	Ditto	Ditto	Ditto	Ditto	Do.
191	Hatioara	Ditto	Ditto	Ditto	Ditto	Do.
PRIVATE MINES NEWLY STARTED.						
HAZARIBAGH.						
1	Malton Dharon	Kali Proshunna, Babu	Khurukdiha	Thana Khurukdiha, Sub-Division Girdih, District Hazaribagh.	Girdih	About 20 miles. Push Push Mica.
2	Jewada	Mr. Phoolet	Ditto	Ditto	Ditto	Do.
3	Timpikho	Ditto	Ditto	Ditto	Ditto	Do.
4	Chowa	Messrs F. F. Chrestien and Co.	Tisree via Bhurai	Thana Gowan, Sub-Division Girdih, Hazaribagh.	Ditto	Do.
5	Singho	Ditto	Ditto	Ditto	Ditto	Do.
6	Ledhi	Ditto	Ditto	Ditto	Ditto	Do.
7	Abarkho	Ditto	Ditto	Ditto	Ditto	Do.
8	Sargi	Ditto	Ditto	Ditto	Ditto	Do.

PARTICULARS OF ALL MINES NEWLY STARTED IN THE DISTRICTS OF HAZARIBAGH AND MANBHUM IN THE CHOTA NAGPUR DIVISION DURING THE HALF-YEAR ENDING 30TH JUNE 1898—concl'd.

Sl. No.	Name of mines started.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mines (State, Province, Division or District).	Nearest or most convenient Railway or other Station.	Distance from Station.	Means available for getting to mine from Station.	Minerals worked.	REMARKS.
HAZARIBAGH—cont'd.									
PRIVATE MINES NEWLY STARTED—cont'd.									
9	Burhiakhad .	Messrs. F. F. Chrestien and Co.	Tisree <i>via</i> Bhurai .	Thana Gowan, Sub-Division Giridih, Hazaribagh.	Giridih .	About 60 Miles .	Push Push .	Mica.	
10	Rajpura .	Ditto .	Ditto .	Ditto .	Ditto .	Ditto .	Ditto .	Do.	
11	Sedhra .	Mr. Gode .	Gowan .	Ditto .	Ditto .	Ditto .	Ditto .	Do.	
12	Burhia .	Bhagwati, Babu .	Ditto .	Ditto .	Ditto .	Ditto .	Ditto .	Do.	
13	Majnas .	Ditto .	Ditto .	Ditto .	Ditto .	Ditto .	Ditto .	Do.	
14	Katwapahri .	Ditto .	Ditto .	Ditto .	Ditto .	Ditto .	Ditto .	Do.	
15	Bagdeydlil .	T. H. Ward, Esq. .	Ditto .	Ditto .	Ditto .	Ditto .	Ditto .	Do.	
16	Damarwa .	Jahor Mull .	Ditto .	Ditto .	Ditto .	Ditto .	Ditto .	Do.	
17	Karmatand .	Dr. Saise .	Giridih .	Ditto .	Ditto .	Ditto .	Ditto .	Do.	
18	Chorkapathal .	Bhagwati .	Gowan .	Ditto .	Ditto .	Ditto .	Ditto .	Do.	
MINES NEWLY STARTED.									
MANBHUM DISTRICT.									
1	Bhaga .	Jharia Co. .	Bhaga .	Gobindpur, Sub-Division Manbhum.	Dhanbad .	6 miles .	Palki .	Coal.	
2	Bagdigi .	Chas. Smith .	Bagdigi .	Ditto .	Ditto .	7 " .	Do. .	Do.	
3	Brahmanbaria .	E. I. Coal Co. .	Brahmanbaria .	Ditto .	Ditto .	7 " .	Do. .	Do.	
4	Benahir .	Ambica Charan Laik .	Benahir .	Ditto .	Ditto .	6 " .	Do. .	Do.	
5	Jharia .	Tara Prosonno Dutt .	Jharia .	Ditto .	Ditto .	5 " .	Do. .	Do.	

	6	Surataur	Notobar Dass	Surataur	Ditto	Ditto	Ditto	6 "	Ditto	Ditto	Work since stopped, Ditto.
6	Surataur										
7	Harinadi		Prosonno Kumar	Harinadi	Ditto	Ditto	Ditto	8 "	Ditto	Ditto	
8	Patherdeba		Ghosh, Uttam Coal Co.	Patherdeba	Ditto	Ditto	Ditto	12 "	Ditto	Ditto	
9	Nowadi		Dhanharikar	Nowadi	Ditto	Ditto	Godhar	1 mile	Ditto	Ditto	
10	Patlabari		Satish Chandar Bose	Potlabari	Ditto	Ditto	Barakar	4 miles	Ditto	Ditto	Ghuting.
11	Burmari		New Beerbhumi Coal Co.	Burmari	Ditto	Ditto	Ditto	½ mile	Ditto	Ditto	Pocha Pathar.

8.—PARTICULARS OF ALL MINES ABANDONED IN THE DISTRICTS OF HAZARIBAGH AND MANBHUM IN THE CHOTA NAGPUR DIVISION DURING THE HALF-YEAR ENDING 30TH JUNE 1898.

STATEMENT OF MINES ABANDONED.										
GOVERNMENT MINES.*										
Hazaribagh.										
1	Khur Kutta	W. Noble, Esq.	Koderma	Koderma, Koderma P. S.	Girdih	60 miles	Push	Push	Mica.	
2	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	
3	Kajradah	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	
4	Bambharia	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	
5	Bora Sujunia	E. Cox, Esq.	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	
6	Cholasujunia	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	
7	Dagia	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	
8	Dhoga	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	
9	Phootbye	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	
10	Aorakhad	E. Lane, Esq.	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	
11	Henaora	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	

* Mines in Government Estate.

PARTICULARS OF ALL MINES ABANDONED IN THE DISTRICTS OF HAZARIBAGH AND MANBHUM IN THE CHOTA NAGPUR DIVISION DURING THE HALF-YEAR ENDING 30th JUNE 1898—*contd.*

Serial Number.	Name of mines abandoned.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mines (State, Province, Division or District).	Nearest or most convenient Railway or other Station.	Distance from Station.	Means available for getting to mines from Station.	Minerals worked.	REMARKS.
STATEMENT OF MINES ABANDONED— <i>contd.</i>									
GOVERNMENT MINES*— <i>contd.</i>									
<i>Hazaribagh—contd.</i>									
12	Hanuman	E. Lane, Esq.	Koderma	Koderma, Koderma P. S.	Giridih	60 miles	Push	Mica.	
13	Dhalagir	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.	
14	Galkhand	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.	
15	Mandwa	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.	
16	Rapa	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.	
17	Alkator	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.	
18	Kallapani	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.	
19	Baghua	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.	
20	Jateha	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.	
21	Chirki	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.	
22	Moneria	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.	
23	Jumoonia	W. D. Clyburn, Esq.	Ditto	Ditto	Ditto	Ditto	Ditto	Do.	
24	Sarandua	Babu Jugeswar Prosad	Domechanch	Ditto	Ditto	Ditto	Ditto	Do.	
25	Lalki	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.	
26	Paoa	Babu Kanai Lal Singh	Koderma	Ditto	Ditto	Ditto	Ditto	Do.	
27	Jaharia	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.	

*Mines in Government Estate.

9.—PARTICULARS OF GOVERNMENT MINES* NEWLY STARTED IN THE HAZARIBAGH DISTRICT DURING THE HALF-YEAR ENDING 31ST DECEMBER 1898.

No.	Name of mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mines (State, Province, Division, Sub-Division, District).	Nearest or most convenient Railway or other Station.	Distance from Station.	Means available for getting from mine to Station.	Mineral wrought.
1	Karlia .	Babu Gopi Nath Bysack	Koderma .	Koderma .	Girdih .	60 miles	Push Push .	Mica.
2	Paproba .	Ditto	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.
3	Sarlahai .	Ditto	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.
4	Bishakha .	Ditto	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.
5	Hadhadon .	Ditto	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.
6	Footlai .	Ditto	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.
7	Kalaphari .	Ditto	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.
8	Gamoria .	Ditto	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.
9	Peprohi .	Babu Kanai Lall Ghosh	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.
10	Sarlahai .	Ditto	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.
11	Sagua .	Ditto	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.
12	Nuna .	Ditto	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.
13	Harharia .	T. Miligen, Esq. .	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.
14	Sakua .	Ditto	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.
15	Moralia .	Ditto	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.
16	Baroha .	Ditto	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.
17	Parma .	Babu Raj Khirsna Shama.	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.
18	Duida .	Ditto	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.
19	Bhujua .	Ditto	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.
20	Tantaria .	Ditto	Ditto .	Ditto .	Ditto .	Ditto	Ditto .	Do.

* Mines in Government Estate.

21	Soya .	W. T. Floyd	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	Ditto	.	.	Do.
22	Khurkutia .	Mr. Ward and Harnath Singh.	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	Ditto	.	.	Do.
23	Khurkutia .	Ditto	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	Ditto	.	.	Do.
24	Surendowa .	Ditto	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	Ditto	.	.	Do.
25	Lalki .	Ditto	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	Ditto	.	.	Do.
26	Kajradah .	Ditto	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	Ditto	.	.	Do.
27	Ditto .	Ditto	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	Ditto	.	.	Do.
28	Gambariah .	Ditto	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	Ditto	.	.	Do.
29	Chota Sajani	Ditto	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	Ditto	.	.	Do.
30	Bara Sajani .	Ditto	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	Ditto	.	.	Do.
31	Daghia .	Ditto	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	Ditto	.	.	Do.
32	Dhoja .	Ditto	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	Ditto	.	.	Do.
33	Paree .	Babu Jugal Kishore Roy	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	Ditto	.	.	Do.
34	Sugi .	Ditto	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	Ditto	.	.	Do.
35	Lilwa .	Ditto	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	Ditto	.	.	Do.
36	Motia .	Ditto	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	Ditto	.	.	Do.
37	Mukutia .	Ditto	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	Ditto	.	.	Do.
38	Jaipur Inderwa	Ditto	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	Ditto	.	.	Do.
39	Baria Khad .	Ditto	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	Ditto	.	.	Do.
40	Iamabai .	Ditto	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	Ditto	.	.	Do.
41	Pamabai .	Ditto	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	Ditto	.	.	Do.
42	Soogi Mohudar	Ditto	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	Ditto	.	.	Do.
43	Desarwar .	Ditto	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	Ditto	.	.	Do.
44	Lilnadah .	Ditto	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	.	Ditto	.	.	Ditto	.	.	Do.

Particulars of all Government Mines newly started in the Hazaribagh District.*

No.	Name of Mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of Mines, (State, Province, Division, Sub-Division).	Nearest or most convenient Railway or other Station.	Distance from Station.	Means available for getting from mine to Station.	Mineral wrought.
89	Jamoonin	Munshi Beleshwar Prosad	Koderma	Koderma	Giridih	60 miles	Push Push	Mica.
90	Kemoria	Babu Amrit Lall	Ditto	Ditto	Ditto	Ditto	Ditto	Do.
91	Pataha	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.

*Mines in Government Estate.

B.—Private Mines newly started.

1	Dhobapat	Messrs. F. F. Chrestien	Tisri and Bhuria P. O. . . .	Gawan	Giridih	40 miles	Push Push	Mica.
2	Delia	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.
3	Chitpoki	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.
4	Kusubari	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Do.
5	Barhia	Mr. Gode	Gawan P. O. . . .	Ditto	Ditto	Ditto	Ditto	Do.

Particulars of Mines started in the Manbhoom District for the half-year ending 31st December 1898.

No.	Name of Mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mines (State, Province, Division, Sub-Division, etc.)	Nearest or most convenient Railway or other Station.	Distance from Station.	Means available for getting from mine to Station.	Mineral wrought.
1	Ramkanali . . . .	.....	.....	Sadar Sub-Division Manbhum.	Ramkanali	$\frac{1}{4}$ mile	None required	Limestone.

10.—Particulars of all Government Mines* abandoned in the Hazaribagh District during the second half-year 1898.

No.	Name of mine.	Name of Owner or Company.	Mine address of Owner or Company.	Situation of mines (State, Province, Division, Sub-Division or District).	Nearest or most convenient Railway or other Station.	Distance from Station.	Means available for getting from mine to Station.	Mineral wrought.
1	Tamahia . . .	Babu Hari Prosad . . .	Koderma . . .	Koderma . . .	Giridih . . .	60 miles . . .	By Push Push . . .	Mica.
2	Hari mine . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Do.
3	Amla . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Do.
4	Bissiswar . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Do.
5	Bodhna . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Do.
6	Murghutia . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Do.
7	Kachoria . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Do.
8	Salva . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Do.
9	Bagolua . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Do.
10	Sugi . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Do.
11	Dadoa . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Do.
12	Tilya . . .	Kherodar Naik . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Do.
13	Inderwa . . .	Michael Sullivan . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Do.
14	Karoca . . .	Kara Sahu . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Do.
15	Halchandwa . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Do.
16	Mogloa . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Do.
<i>B.—Private mines abandoned.</i>								
1	Mocnua Pahari . . .	Babu Tincouri Chowdhry . . .	Giridih . . .	Giridih . . .	Giridih . . .	38 miles . . .	By cart . . .	Mica.
2	Kharomari Pabar . . .	Babu Ashu Tosh Mitter . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Do.

* Mines in Government Estate.

B.—Private mines abandoned—contd.

No.	Name of Mine.	Name of owner or company.	Mine address of owner or company.	Situation of mines (State, Province, Division, Sub-Division, District).	Nearest or most convenient Railway or other Station.	Distance from Station.	Means available for getting from mines to Station.	Mineral wrought.
3	Charkipatal . . .	Babu Ashu Tosh Mitter .	Giridih . . .	Giridih . . .	Giridih . . .	38 miles .	By cart .	Mica.
4	Choramaran . . .	Bahadur Mull Set .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto .	Ditto .	Do.
5	Moondafor . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto .	Ditto .	Do.
6	Bhartooki . . .	Jowhair Mull .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto .	Ditto .	Do.
7	Sagua . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto .	Ditto .	Do.
8	Sarang . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto .	Ditto .	Do.
9	Digha . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto .	Ditto .	Do.
10	Ghari . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto .	Ditto .	Do.
11	Godkoora . . .	Messrs. F. F. Chrestien .	Tisri <i>via</i> Bhuria P. O. .	Thana Gawan .	Ditto . . .	20 miles .	Ditto .	Do.
<i>Particulars of private mines abandoned in the Hazaribagh District during second half-year 1898.</i>								
12	Madhan . . .	Messrs. F. F. Chrestien .	Tisri <i>Via</i> Bhuria .	Thana Gawan .	Giridih . . .	20 miles .	Push Push .	Mica.
13	Khira Khira . . .	Ditto . . .	Ditto . . .	Jhana . . .	Ditto . . .	Ditto .	Ditto .	Do.
14	Kakoka . . .	Ditto . . .	Ditto . . .	Gawan . . .	Ditto . . .	Ditto .	Ditto .	Do.
15	Chowa . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto .	Ditto .	Do.
16	Singho . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto .	Ditto .	Do.
17	Ledhi . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto .	Ditto .	Do.
18	Abarko . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto .	Ditto .	Do.
19	Sorgi . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto .	Ditto .	Do.
20	Baria Khad . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto .	Ditto .	Do.
21	Rajpura . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto . . .	Ditto .	Ditto .	Do.

II.—SPECIAL MATTERS OR STATEMENTS FROM RETURNS RECEIVED FOR 1898.

No.	Name of Districts, etc.	PARTICULARS.	REMARKS.
1	Bengal	Statement of "mines started or abandoned in the Bhagalpur, Rajshahi, Burdwan and Chota Nagpur Divisions during the half-year ending 30th June 1898, and to say that the returns for the other Divisions in this Province are blank." "(c) Coal mines newly started (Hazariabagh)—Nil. Nil. Nil. (e) Coal mines abandoned (Hazariabagh)—Nil. Nil. Nil. Mines abandoned (Manbhumi)—Nil. Nil. Nil.	
2	Assam	"The statement of mines started or abandoned in the Province of Assam during the half-year ending 30th June 1898 is blank." "The statement " " " " " " " " " " "	20th August 1898.
3	North-Western Provinces and Oudh.	"There are no mines working in the North-Western Provinces and Oudh at present" "No mines were started or abandoned in these Provinces during the half-year ending 31st December 1898."	
4	Central Provinces	"No coal mines in the Central Provinces have been started or abandoned during the half-year ended 30th June 1898." "No coal mines " " " " " " " " " " "	And probably no other kind of mine.
5	Punjab	"No new mine has been started and no old mine has been abandoned in the Punjab during the half-year ending 30th June 1898." "No new mine has been started and no old mine has been abandoned in this Province during the half-year ending 31st December 1898."	
6	Hyderabad Assigned Districts	"There were no mines at work in the Province during the Calendar year 1898." "The forms of returns may be considered blank."	9th February 1899.
7	Bombay Presidency I. British District Hyderabad II. Native States Palanpur and Rewakantha	Sent "returns showing particulars of mines being worked in the Bombay Presidency for the half-year ending 30th June 1898, and to intimate that information regarding quarries has been omitted in the return," "Returns for Districts and States other than those shown are blank."	
8	Madras Province, Travancore State.	Calls attention to the reopening of a plumbago mine at Vellanaid in Travancore State. "Particulars of mines started or abandoned in Travancore for the half-year ending 31st December 1898. Nil." Messrs Aspinwall and Co. have not yet begun regular mining operations on the tracts leased out to them." Also sends statements and particulars of mines being worked in the district of Nellore and Vizagapatnam.	4th August 1898.
	Godavari District	"The Collectors of Godavari and Salem have included in their returns the quarries and borings specified on the margin." "The Board requests that the dates on which the returns are due to Government may be altered from the 15th January and 15th July of each year, to 1st February and 1st August."	These dates will be suitable.
9	Burma	No mines were started or abandoned in this Province during the half-year ending 30th June 1898.	
10	Rajputana— Ajmere-Merwara	" 31st December 1898.	

*12.—Occupations of the persons killed during the years 1894, 1895, 1896,
1897, and 1898.*

No.	OCCUPATION.	1894.		1895.		1896.		1897.		1898.		REMARKS.
		Below ground.	Above ground.	Below ground.	Above ground.	Below ground.	Above ground.	Below ground.	Above ground.	Below ground.	Above ground.	
		Number killed.	Number killed.	Number killed.	Number killed.	Number killed.	Number killed.	Number killed.	Number killed.	Number killed.	Number killed.	
1	Superintendents .	...	...	...	...	...	...	...	...	...	...	Assistant to manager. #
2	Mining Assistants	1	...	...	...	...	...	...	...	1	...	
3	Foremen . .	...	...	...	...	...	1	...	...	...	...	
4	Sirdars . .	...	...	...	...	1	...	...	...	...	...	
5	Jemadars . .	...	...	...	...	...	...	...	...	...	...	
6	Mistris . .	...	...	1	...	...	...	...	...	...	...	
7	Munshis . .	...	...	...	...	...	...	...	...	...	...	
8	Mates . .	...	...	...	...	...	...	...	...	...	...	
9	Petty Contractors	1	...	...	...	...	...	...	...	...	...	
10	Miners, hewers and coal-cutters.	66	...	39	...	26	...	13	1	14	...	
11	Coal-carriers .	3	...	...	...	3	...	2	...	...	...	
12	Fillers . .	1	...	1	...	2	...	10	...	6	...	
13	Trammers and shunting coolies.	2	3	1	1	3	...	...	...	1	1	
14	Sinkers . .	4	...	...	...	...	...	1	...	1	...	
15	Blasters . .	...	...	...	...	...	...	1	...	1	...	
16	Drillers and drillers' coolies.	2	...	1	...	...	...	1	...	3	...	
17	Stone-cutters .	...	...	1	...	...	...	1	...	...	...	
18	Stone and mat-carriers.	...	...	...	...	...	...	...	1	...	...	
19	Dust coolies .	...	...	...	...	1	...	3	...	5	...	
20	Coolies or labourers.	14	4	33	...	10	4	29	1	2	6	
21	Tub boys . .	...	...	...	...	...	...	...	...	...	...	
22	Carpenters . .	1	...	...	...	...	...	...	...	...	...	
23	Timbermen . .	...	...	2	...	...	...	...	...	...	...	
24	Enginemen and stokers.	...	...	1	...	...	...	1	...	2	2	
25	Hookers-on . .	...	...	...	...	2	...	...	...	...	1	
26	Landers . .	...	...	...	...	...	...	...	...	...	...	
27	Signalmen . .	...	...	...	...	...	...	1	...	...	...	
28	Ropemen . .	1	...	...	...	...	...	...	...	...	...	
29	Khalasis . .	2	...	1	...	1	...	...	...	1	...	
30	Pump and air-pipe fitters.	...	...	2	1	2	...	...	...	...	...	
31	Pump boys . .	...	...	...	...	...	...	...	...	...	...	
32	Bucketmen . .	...	...	...	...	...	...	...	...	...	...	
33	Bailing coolies .	...	1	...	...	...	...	1	...	1	...	
34	Door-keepers .	...	...	...	...	...	...	1	...	2	...	
35	Oil boys and assistant boys.	...	...	2	...	...	...	1	...	...	...	
36	Screeners . .	...	...	...	...	...	...	...	4	...	2	

*Occupations of the persons killed during the years 1894, 1895, 1896, 1897,
and 1898—contd.*

No.	OCCUPATION.	1894.		1895.		1896.		1897.		1898.		REMARKS.
		Below ground.	Above ground.	Below ground.	Above ground.	Below ground.	Above ground.	Below ground.	Above ground.	Below ground.	Above ground.	
		Num- ber killed.	Num- ber killed.	Num- ber killed.	Num- ber killed.	Num- ber killed.	Num- ber killed.	Num- ber killed.	Num- ber killed.	Num- ber killed.	Num- ber killed.	
37	Train or loco- motive drivers.	...	I	...	...	...	...	...	...	...	...	
38	Brakesmen	I	...	...	...	..	I	I	...	...	...	
39	Platelayers, plate- laying makadams, coolies and linemen.	I	...	2	I	2	...	I	...	...	...	
40	Blacksmiths	...	...	...	...	...	...	...	...	...	...	
41	Carters	...	...	...	...	...	...	...	...	...	...	
42	Syces	...	...	...	...	...	...	...	...	...	...	
43	Watchmen	...	...	...	...	...	...	...	...	...	...	
44	Postal carriers	...	...	...	...	...	...	...	I	...	...	
45	Sundry work	I	...	...	...	...	...	I	...	...	...	
46	Unknown, and not employed at the mine.	15	4	5	4	...	I	...	...	...	...	
47	Opening charge- men.	...	...	...	...	...	...	...	...	I	...	A new de- scription.

JAMES GRUNDY,
Inspector of Mines in India.

1st May 1899.

REPORT
ON THE
INSPECTION OF MINES IN INDIA,
FOR THE
YEAR ENDING THE 3¹ST DECEMBER
1899,

EDITED BY
G. F. READER, F.G.S.,
OFFICIATING INSPECTOR OF MINES IN INDIA.

FROM NOTES BY
JAMES GRUNDY, Esq.,
INSPECTOR OF MINES IN INDIA.



CALCUTTA:
OFFICE OF THE SUPERINTENDENT OF GOVERNMENT PRINTING, INDIA.
1901.

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**REPORT ON THE INSPECTION OF MINES IN INDIA FOR
THE YEAR ENDING 31ST DECEMBER 1899, EDITED BY
G. F. READER, OFFICIATING INSPECTOR OF MINES,
FROM NOTES BY MR. JAMES GRUNDY.**

CALCUTTA,
19th November, 1900.

SIR,

IN compliance with the Government of India letter, dated 26th December 1893, I have the honor to submit for publication the Annual Report of the Inspector of Mines for the year ending 31st December 1899.

I have to remark that I took over charge of the office of Inspector of Mines on 3rd October 1900, the administration of the department having been conducted throughout the year of report by Mr. Grundy.

The substance of this report was left by Mr. Grundy before his departure on sick leave in the form of notes which I have re-arranged and edited for publication in accordance with the instructions contained in your memorandum of 4th October 1900, as far as it was possible for me to edit them in the absence of the writer and without personal knowledge of the work done by him. I have re-modelled Part III, the statistical part, and written, as will be seen, the "Remarks on the fatal accidents."

I have arranged the appendices in what appears to me to be their natural sequence, and I have endeavoured to include in them only such information as appeared necessary to bring out in a brief, and at the same time lucid form, all the points relating to the conditions of safety of Indian mining.

As the reason why a report was not ready for submission to Government by the 1st July Mr. Grundy has left the following note:—

"In addition to the delay caused by the late receipt of returns, the preparation of the report has been greatly delayed by my bad state of health; for this I am indeed truly sorry."

PART I.

TOURS OF INSPECTION.

1. During the twelve months under review tours of inspection were made on four occasions:—

1st—From 17th February to 22nd March—to the Asansol, Barakar and Katras-Jherriah Districts.

2nd—From 30th June to 11th July—to the Katras-Jherriah and Giridih Districts.

3rd—From 28th July to 31st July—to the Katras-Jherriah District.

4th—From 8th August to 27th November—to Quetta and Khost in Baluchistan, and the Dandot coal mines and the Salt mines of the Punjab.

On these tours 110 separate underground inspections were made.

Actual inspections being made on 78 days.

Office work, etc., in camp and travelling occupied 84 days.

Office work and interviews in Calcutta occupied 174 days.

PART II.

REVIEW OF WORK DONE DURING THE YEAR.

First Tour.

*Raniganj and
Jherria.*

The inspections during this tour were not solely for the investigation into fatal accidents although a scattered area around Raniganj and Mahdapur in Bengal was traversed for that purpose alone. Accidents were also investigated at Kalipahari and Sitarampur.

Inspections for causes other than accidents were made at—

Kalipahari—where some coal workings were on fire.

Sitarampur—concerning the subsidence of mine workings at a native colliery causing a stoppage of the coal traffic on the railway line.

Rajpura—concerning a surface fire which was spreading towards other mines the owners of which complained.

Igyarkoor and Katras-Jherriah—where some general inspections were made.

Second Tour.

*Jherria and
Giridih.*

During this tour fatal accidents were investigated at—

(1) The Equitable Coal Co.'s No. 5 Pit.

(2) The Champtoria Mine.

(3) The Sanctoria Mine.

(4) The Navigation Coal Co.'s Mine.

(5) The East India Railway Co.'s Kurhurbaree Mine.

(6) The Raniganj Coal Association's Giridih Mine.

(7) Giridih.

(8) Damrah Mine.

(9) Mahdapur Mine.

Third Tour.

Jherria.

On this tour two mines were inspected :—

(1) The Raniganj Coal Association's Kustore Mine to investigate a fatal accident.

(2) The Bamondia Mine which had collapsed.

Fourth Tour.

*Baluchistan and
the Punjab.*

This was a tour of general inspection of the coal mines in Baluchistan and the salt mines of the Punjab. The following are the inspection notes :—

THE COAL MINES IN THE SOR RANGE AND AT MACH, QUETTA.

(1) A report has been printed dealing with the 4 mines in this range of hills and the 1 at Mach as a result of this inspection, and reference may be made thereto for detailed information.

KHOST COLLIERY, BALUCHISTAN.

(2) These mines were previously inspected in 1896 when a full report was drawn up. Some of the matters that were then reported as requiring attention were found to be in the same condition.

ROCKSALT MINES AT KALABAGH.

(3) This mine is worked in the open, like quarrying. There are 12 separate workings or quarries on the side of the hill, each with a separate set of workmen. The salt is conveyed to the weighing yard in panniers carried by bullocks and donkeys.

ALUM SHALE MINES AT KALABAGH.

(4) These mines belong to the Malik of Kalabagh, Yar Mahammed Khan. The refinery was also inspected.

The mines are simply small holes cut into the side of the hill and small passages continued until the alum shale is met with. Work was not being carried on at the time of inspection. The shale is worked out and followed into the hill in whatever direction it may be found. In the present workings it has been followed and taken out for many hundreds of feet in length. The passages, about one in each mine, which lead to the places of work are very small, crooked, intricate and scarcely contain enough air to support life. They are very hot and dangerous. Had one not been accustomed to going into the most awkward places in mines, one would have turned back before reaching the working end. After having travelled these passages it is difficult to realise how the workmen bring out the materials. Such places are wrongly styled mines: they are dangerous passages and works that ought not to be allowed. The effect on the health of the workmen must be very bad indeed. No accidents have been reported as having happened at these works.

These mines were previously inspected and reported on in May 1896; the report forms Part VIII of the general report on the salt mines of the Salt Range. Much that was then written is still applicable and reference may be made there-to for fuller particulars.

WARCHA ROCKSALT MINE, PUNJAB.

(5) This mine was previously inspected in May 1896, and reported upon fully in the volume of reports on the salt mines. The workings on the new system (*vide* section 13, page 77 of the above-named report) were progressing favourably. The old abandoned part of the mine had been almost stowed full of debris so that there is, apparently, little cause for apprehension of danger from that source. To avoid the necessity of the workmen going into any part of the old section a new entrance has been made into the new section of the mine and this was being arched and made safe. New drains were being laid.

MAYO ROCKSALT MINE, KHEWRAH, PUNJAB.

(6) The inspection of this mine was begun on 25th September, but the Khost accident happened necessitating a return to Baluchistan and prevented its completion before the 23rd November.

This mine was previously inspected in March 1896 and then reported upon. In this report a number of matters were pointed out as defective, so that the inspection this year resolved itself into seeing what action had been taken on those remarks and giving advice and assistance. Many of the matters had been put right and others were found to be in various stages of progress, so that it will only be necessary to refer to a few of the matters that received special attention.

(a) *Securing the old sections of the mine.*—Much progress had been made in filling with waste material the worked out and disused parts of the mine. A slip in the strata near the old Soojewal mine, some years ago, raised this question of packing to one of high importance. The filling up as above described is an advisable and safe course to take, especially as regards those workings that will become old and disused from time to time. It will probably prevent movement of the strata and shocks. *Old sections of the mine.*

(b) *Explosives.*—Much was said and done on this subject. One of the principal conclusions arrived at was that every man who has charge of workmen *Explosive.*

is to have a box below ground in a convenient place in which the explosives left over during the day are to be kept during the night-time instead of the explosives being taken home by the workmen. These men are to be fully responsible for the explosives.

This division of the explosives amongst the men in charge for storage purposes will avoid any large quantity having to be kept in the same place at the same time.

CONSERVANCY.

Conservancy. Latrine arrangements, which it was thought would prove satisfactory, were being introduced.

THE DANDOT AND PIDH COAL MINES.

(7) These mines were inspected and reported on in 1896, and there is now little to add except that at Pidh there was not much work being done, and the mine had the appearance of being nearly worked out.

REMARKS ON THE FATAL ACCIDENTS AT INDIAN MINES DURING THE YEAR.

Fatal accidents. I have given statistics relating to accidents, deaths and death-rates in *PART III (Appendices II and III)* of this report. A reference to these will, I think, be sufficient to convince one of the very unsatisfactory state of affairs and the necessity of an Act for the Regulation and Inspection of Mines in India.

Appendix III, Table I, shews that there were 62 fatal accidents reported (56 below ground and 6 above ground) causing a loss of 116 lives of which 103 were males and 13 females.

These figures shew a considerable increase on those reported for previous years (*vide* appendix)—

Deaths in 1897	.	.	.	.	.	.	.	77
Do. 1898	.	.	.	.	.	.	.	53
Do. 1899	.	.	.	.	.	.	.	116*

* The accident at the Khost Colliery, Baluchistan, was an unusual one and caused the loss of 47 lives.

Comparative death-rates, United Kingdom and India.

Appendix III, Table No. IV shows that the accident death-rate at coal mines in India per 1,000,000 tons of mineral raised on persons above and below ground is 19.51 and that at all the mines in the United Kingdom (under the Coal Mines Regulation Act) it is 3.93; in other words *the death-rate per 1,000,000 tons of mineral raised for persons employed above and below ground in India is FIVE times that of the United Kingdom for mines under the Coal Mines Regulation Act.*

Appendix III, Table No. IV also shows in detail the chief causes of this adverse ratio. It can be seen that per 1,000,000 tons of mineral raised there were :—

3 deaths in India for 1 in the United Kingdom	by "falls of ground."
8 Do. 1 do.	by "shaft accidents."
9 Do. 1 do.	miscellaneous below ground.
6 Do. 1 do.	underground.
2 Do. 1 do.	surface.
5 Do. 1 do.	above and below ground.

It is evident from the above then that under every cause the ratio is adverse to India and that in "falls of ground", "shaft accidents" and "miscellaneous below ground" a state of affairs is existing which calls for a remedy, especially considering that the majority of these were found on investigation to have been avoidable had only ordinary care been exercised.

THE PRINCIPAL CAUSES OF ACCIDENTS.

The following notes on the principal causes of accidents were left by Mr. Grundy who had visited the scenes of some of them. I give them as they are suggestive of some improvements.

1. FALLS IN THE MINES.

There were 18 accidents from falls of roof causing a loss of 21 lives of *Falls of roof.* which 16 were males and 5 females.

These figures show that more attention ought to be given to securing the roof; also that if females are to work in the mines, that special precautions for their safety should be taken, from this source of danger. Roof examiners and road repairers, etc., are all males, and it is to be expected from the very nature of a man that he will see to his own safety. It is, however, not so with females, the safety of the parts where they have to work requiring to be seen to by others. It, therefore, devolves on the mine officials to see that special precautions are taken to provide for their safety.

There were 2 accidents causing 2 deaths from this cause, 1 male and *Falls of side.* 1 female.

This caused 4 accidents with 7 deaths, 6 being males and 1 a female.

*Fall of coal from
working face.*

From the above it can be seen that there were in all 30 lives lost by *falls in the mines*, 23 of which were males and 7 females.

The duty of keeping the roof and sides safe devolves directly on the mine officials. The safe condition of the working face, however, from falls of coal in which 7 deaths occurred depends more or less on the workmen themselves. Nevertheless mine officials ought to exert greater supervision to lessen this figure, especially as the miners are generally inexperienced and ignorant.

2. IN SHAFTS.

This cause is responsible for 19 accidents causing 20 deaths.

This is a high figure and more than would have happened if only ordinary precautions had been taken by the mine officials and by the deceased themselves.

One of the above accidents was caused by what was believed to be careless action on the part of the banksman and the pump khalasi, and these two workmen were arraigned before the Giridih Magistrate and sent to prison for one month. This is noteworthy because for quite a number of reasons the sending of a workman to prison is a very rare occurrence indeed.

3. EXPLOSION OF FIRE-DAMP.

There was 1 accident causing 1 death from this cause. The deceased went into a place that was fenced off and his naked light set fire to a little fire-damp. It has been repeatedly pointed out that there is great danger in allowing fire-damp to accumulate and in delaying to remove it at the first suitable opportunity. To fence off such places may do a little good but it neither takes away the great danger nor the responsibility of the officials.

4. SUFFOCATION BY GASES.

The accident at the Takrai Mine, Khost, comes under this heading, and accounts for 47 of the lives lost.

There was one other accident and death caused by a pump khalasi going down a mine shaft where the previous and well-known circumstances made it very probable that carbonic anhydride (black damp) would be present. He did not test the condition by first lowering a light nor apparently take any other precaution for his own safety.

5. BY EXPLOSIVES.

The use of explosives caused 4 accidents with 4 deaths, —3 males and 1 female.

These figures, taken into consideration with the number of mines at which explosives are used, are high.

6. SURFACE RAILWAYS.

Three accidents causing 3 deaths happened on colliery railways: one man fell from a bridge into a deep nala below, and 2 brakesmen were run over by apparently neglecting to look after their own safety.

REMARKS ON MINE MANAGEMENT, ETC.

Management of Mines.

There is much room for improvement in the management of the mines.

It is not at all unusual to find natives who have had no previous experience whatever of such work in full charge, and managing mines. At many of these mines there are few regular inspections made, in fact, at some there appears to be none made by officials appointed for the purpose, and as a consequence there are no reports kept of the conditions of the mines. It is seldom that there are proper instruments available for testing the state of the roof in high places. If the 'sulphi' or pricker and bunter for sounding the roof and coal and pulling down that which may be found loose in high places is asked for, such a thing is apparently either unknown or a common bamboo is produced, which is quite useless for the purpose.

Absence of Sirdars and of Examinations.

If a Sirdar who has ordinarily the underground charge of a mine absents himself for a few days it is not unusual to carry on the work without any one being appointed to act for him. During these days the mine is worked without the usual supervision and without the roof and sides of the mine being examined and its safety ascertained.

Ventilation.

At many mines there is no attempt made at ventilation. An inexpensive application of sheeting, doors, stoppings, etc., would often be a very great improvement. Strange as it may appear, there are many mine managers who do not know how to ventilate a mine. So far as supplying an adequate amount of ventilation, coursing it in the mine and removing foul emanations are concerned, little, if any, regard is paid to them; the managers allowing these matters to work off themselves apparently in ignorance of any action on their part being necessary. A little care in these matters would make the mines less dangerous.

Lighting.

The bad effects of such ventilation are greatly added to by the smoke from the kerosine oil burned in the lamps used by the workmen in all parts of the mine workings. It is usual for each person to have a kerosine-oil lamp in his possession, and some of these lamps give off large quantities of smoke and soot. The smoke fills the galleries to such an extent that it is impossible to see, and the want of sufficient air and the effects of other emanations are sometimes so

bad that a light will not burn and a man feels that he cannot long live in such a place. A better and less smoky oil might be used. It would, however, cost more than the kerosine oil. The Superintendent at the East Indian Railway Company's collieries at Giridih introduced the use of a less smoky oil—castor oil—a few years ago, and found it to be a great improvement.

Long cuttings made for connections and for improving the ventilation are sometimes started, but long before these desirable objects are achieved, the cuttings become quite unfit to work or live in. In such cases the temporary use (during the completion of the cutting) of a better oil, such as castor or cocoa-nut oil, sheeting, stoppings, doors, small fan, pipes, etc., have been suggested, but either from want of money, carelessness or ignorance the recommendations have seldom been adopted.

To save expense, lessen the quantity of smoke and soot, and to get a better and steadier light, the very useful device of using mixed oils is adopted at a number of mines. A mixture that gives good results is formed of 4 parts of kerosine to 1 part of cocoa-nut oil; the quantity of kerosine necessary however depends greatly on the thickness or heaviness or otherwise of the second oil. One mixture of oils that gives good results in miners' safety lamps, under most of the varied conditions in which they have generally to be used, consists of kerosine oil 3 parts by measure, castor oil 1 to $1\frac{1}{2}$ parts by measure. *Mixing oils for miners' lamps.*

The use of naked lights in some parts of a mine while safety lamps are being used in other parts of the same mine where fire-damp may be expected, gives cause for no little thought or anxiety. The very important fact that a small quantity of fire-damp may lead to a large and destructive accident was painfully illustrated during the year under report at the Takrai Mine of the Khost Colliery by the accident which happened on 12th October in which 47 men lost their lives. *Fire-damp.*

The Indian coal mines cannot be said to contain much fire-damp; enough to cause great loss of life is, however, sometimes found while there is sufficient carelessness or ignorance in the management to make an accident not improbable. Very much might be said on this important subject, but it may be left over for the present with the strong warning that the presence of even a small quantity of fire-damp is a great and constant danger. No fire-damp whatever should therefore be allowed to remain in any part of a mine for a moment longer than can be helped, no matter where it may be found, whether a working part or not, or whether unfenced or fenced off. *Mine fires.*

Much has been said on the subject of mine fires with all their accompanying accidents, destruction, and expense, nevertheless no improvement appears to have been made. Places have been seen under ground where fires have been kindled by the workmen on a heap of small coal, even in mines where the managers have said that no fires were allowed. The non-prohibition of such fires indicates great indifference and that sources of danger are allowed to exist until an accident is caused; hence, instead of the mine and the lives of the workmen being safeguarded, they are daily in imminent risk of destruction.

The following mine fires came under notice during the year:—

- (1) Sambu Nath Roy's Rajpura mine.
- (2) The Damuda Coal Coy.'s Ghoosic property.
- (3) The Kalipahari.
- (4) One of the Sanctoria Mines of the Bengal Coal Co.
- (5) Kila Hakim Khan Mine, Khost.
- (6) The Takrai Mine (Khost).
- (7) The No. 12 Mine (Khost).

*The Kalipahari
mine fire.*

As regards the third or Kalipahari fire, it was rumoured that a subsidence had occurred near to the Railway Station, making a hole through to the surface into which two miners had accidentally walked and lost their lives.

Takrai mine fire.

The sixth or Takrai mine fire was originated by the mine becoming on fire from some unknown cause. The fire spread so rapidly as to render the condition of the mine altogether more dangerous than could be grappled with. The mine was sealed up and the bodies of the 47 men, who were employed in the mine at the time, were entombed within.

This is the most disastrous accident of its kind that has ever happened in India, and managers who are working dry and dusty mines may learn a great deal from a perusal of the printed report on this and the other accidents at the Khost Colliery.

*Kila Hakim Khan
mine fire.*

The Kila Hakim Khan fire occurred on the 9th October (3 days before the Takrai accident). The cause is unknown. The smoke from the fire filled the workings so quickly that the miners had literally a race for life to get out of the mine. The mine was sealed up. It was re-opened on 28th October when a hanging sheet and a few timber supports near the inbye end of the level tunnel were found to have been burnt away. This accident caused no personal injury.

*The Takrai
explosion.*

This explosion occurred about 11 A.M. on 12th October, *i.e.*, one hour before the fire that caused the death of the 47 workmen was observed. A Jemadar incautiously lifted a naked light into the higher part of the roof near the working face. A small explosion of fire-damp occurred, burning him about the face and left-hand, and the injured man was brought out to the surface. It was after this that the mine was noticed to be on fire. There is very probably a close connection between this small explosion, bringing out the injured man along passages in which dry sheeting was hung (the men having naked lights), and the disastrous fire that so soon followed it.

*Reported No. 12.
mine fire, Khost.*

At the No. 12 mine Khost Colliery a fire was reported to have been seen between October 19th and 21st. The Police Inspector on visiting the place found that the fire had gone out. He concluded that it had been wilfully kindled.

Mines collapsed.

One or two cases of mines collapsing and the consequent subsidence of the surface happened during the year. The cause of these may be attributed to the taking of too much coal away from shaft-pillars and thinning down coal pillars until they are too weak to support the superincumbent strata. A matter of serious importance in mine subsidences is the stoppage caused on the railway line running adjacent to the mine as was the case when the ground, engine-house, and chimney went down at the Oriental Coal Association's mine near Sitarampur.

*Shafts and
inclines.*

These form another subject to which attention may well be given. Some of the principal points are :—

- (a) The absence of a second outlet or travelling way.

Where there is only one travelling way there is constant risk of the workmen being imprisoned in the mine should any accident occur in the outlet itself or to the winding apparatus.

- (b) Some of the inclines are so steep and slippery as not to be fit and safe for persons to travel and carry coal along.

- (c) The tops of shafts and the sides of deep cuttings for inclines should not be left unfenced.

(d) Machinery for raising and lowering persons should not be defective in any of its parts, *e.g.*, the most common defects noticed were :—

The absence of a brake to the engine drum.

Inferior capping to ropes.

The use of too small winding pulleys.

Defective head stocks.

In building tall colliery chimneys it would be well if managers would endeavour to introduce the use of ladders, etc., and of pulleys for raising material, instead of permitting the present system whereby the workmen climb up scaffolding consisting of horizontal bamboos loosely fixed 7 feet apart and the women standing on these scaffolds, one above the other, pass up all the material. *Tall colliery chimneys.*

It cannot but be seen that the use of a rope and pulley is a much cheaper, quicker, and safer means of raising all material.

The Bill to provide for the Regulation and Inspection of Mines has been still further advanced during the year, and, having regard to what has been said in the foregoing notes and in those of previous years of the present state of mining in India, it is to be hoped that this Bill will soon become law. *Indian Mines Bill.*

I have the honour to be,

SIR,

Your most obedient Servant,

G. F. READER,

Officiating Inspector of Mines in India.

PART III.

STATISTICS.

APPENDIX I.

LIST OF FATAL ACCIDENTS.

No. on Register.	Date and hour of Accident.	Name, Description and Situation of Mine.	Name of Owner or Company.	Name, age, sex and occupation of person killed.	CAUSE OF ACCIDENT AND REMARKS.
Underground.					
<i>1.—Falls of roof—stone or coal.</i>					
1	6th January, 12-30 P.M.	Kuldea Colliery, Giridih.	Bengal Coal Company, Limited.	Kado Barhee, 24, (m), carpenter's cooly.	Coal fell on him whilst assisting to set a prop.
7	4th February, 10 A.M.	Singareni Colliery, Yellandu.	The Hyderabad Deccan Company.	Jadepalli Butcham, 28, (m), cooly.	Stone fell on him.
13	28th February, 1 P.M.	Singareni Colliery, Yellandu.	Ditto ditto.	Dripal Singh, 28, (m), coal-cutter.	Stone fell on him, fracturing skull and dislocating neck.
12	22nd March, 11 A.M.	Sanctoria Colliery, Burdwan.	Bengal Coal Company, Limited.	Sona Teli, 30, (m), stone-cutter.	Coal fell on him whilst cutting holes for supports.
22	30th March, 6-30 P.M.	No. 1 Incline, Ragnath Batti Colliery, Sitarampur.	Navigation Coal Company, Limited.	Akloo Majee, 30, (m), Karoo Majee, 35, (m), hewers.	Stone fell on them, apparently through their acting contrary to the orders of the person in charge.
14	10th April	No. 4 Pit, Nundia Colliery, Ranigunj.	Adjai Coal Company, Limited.	Dorjan Majee, 27, (m), miner.	Coal fell on him.
18	17th May, 11-40 A.M.	Seebpore Colliery, near Asansol.	Katras Jherriah Coal Company, Limited.	Pitho Majee, 35, (m), mine sirdar.	Stone fell on deceased whilst supervising the setting of timber to make place safe.
19	27th May, 2-30 P.M.	No. 1 Quarry, Giridih Colliery, Giridih.	Raneegunge Coal Association, Limited.	Name not given, 45, (f), not a mine employé.	Stone fell on her.
23	13th June, 3-30 P.M.	No. 10 Seam, Sanctoria Colliery, Burdwan.	Bengal Coal Company, Limited.	Jibon Mahata, 58, (m), miner.	Coal fell on him and also injured another seriously.
27	18th June, 2 P.M.	Looti Mine (Mica), Koderma, Hazaribagh.	Messrs. F. F. Chrestien and Company.	Ginohary Singh, 29, (m), driller.	Stone fell on him.
41	24th August, 6-30 P.M.	Singareni Colliery, Yellandu, Hyderabad State.	Hyderabad (Deccan) Company.	Hythoo Mulladoo, 25, (m), coal-cutter.	Stone fell on his head and neck.
42	5th September, 1 P.M.	No. 2 Seam, Dhondabad Colliery, Burdwan.	New Manbhoom Coal Company, Limited.	Romia Ghatawal, 48, (f), dustwoman.	Stone fell on her; apparently there had been too few inspections made and the roof not sufficiently tested.
45	15th September, 12-30 A.M.	Hutti Gold Mines, Hutti, Hyderabad State.	Hyderabad (Deccan) Company.	Gooman Somaiah, (m), Gaumor Bushingappah, (m) muck coolies.	Stone fell on them.

APPENDIX I—contd.

No. on Register.	Date and hour of Accident.	Name, Description and Situation of Mine.	Name of Owner or Company.	Name, age, sex and occupation of person killed.	CAUSE OF ACCIDENT AND REMARKS.
46	27th September, 4 P.M.	New Incline, Churanpore, Asansol.	Messrs. Apcar and Company.	Mohon Kora, 14, (m), Boodhonie Korani, 13, (f), coolies.	Stone fell on them. It appeared that they were sent into the place of accident without any examination of roof having been previously made.
51	1st November, 11-40 A.M.	Singareni Colliery, Yellandu, Hyderabad.	Hyderabad (Deccan) Company, Limited.	Lutchmee, 25, (f), filler.	Stone fell on her.
57	27th November, 8 A.M.	Seri Mithi Quarry, Jaisalmer, Rajputana.	Jaisalmer Durbar	Shiaji, 35, (m), cultivator and labourer.	Earth from the top of an excavation that he was digging fell on him.
...	27th November, 1 P.M.	No. 5 Pit, Luchipore Colliery, Ranigunge.	Equitable Coal Company Limited.	Noonie Bowrie, 38, (f), coal-filler.	Coal fell on her. It was so small that it is doubtful whether it caused the death of the woman.
61	29th December, 6 P.M.	Shariabad Shaft, Kurhurbaree Colliery, Giridih.	East Indian Railway Company.	Choa Rai, 32, (m), coal-cutter.	Stone fell on him. If miners examined the roof under which they intended to sit or stand, many such accidents might be avoided.
<i>2.—Falls of sides—stone or coal.</i>					
43	6th September, 1-30 A.M.	No. 1 Quarry, No. 10 Gallery, Goluckdih, Manbhoom.	Great Eastern Coal Company, Limited.	Name not given, (f), coal carrier.	Stone fell on her from the corner of a pillar at a part where persons were not allowed to go. The Assistant said the part was fenced off, but this appeared doubtful.
59	16th December, 1 A.M.	Pidh, Dandot Colliery, Punjab.	North-Western Railway.	Karam Dad, 16, (m), coolie.	Coal and shale fell on him while working at the part.
<i>3.—Falls of coal from working face.</i>					
5	20th January, 8-30 A.M.	Tikak Colliery, Lakhimpur, Assam.	Assam Railways and Trading Company, Limited.	George Westerman, 27, (m), Foreman. Nobin, 24, (m), coal-cutter. Pushua, 27, (m), coal-cutter. Banji, 23, (f),	Coal fell on them.
29	27th June, 9 A.M.	Champtoria, near Barakar, Burdwan.	Busi Lall Pain	Shoumbhoo, Kaura, 27, (m), coal-cutter.	Coal fell on him.
35	21st July, 3 P.M.	Kustore Colliery, Gobindpur, Manbhoom.	Ranigunge Coal Association, Limited.	Paran Turi, 35, (m), miner.	Coal fell on him whilst he was cutting roof coal at a place where he was not ordered to do so; his own working place was in another part of the mine.
40	2nd August, 4-30 P.M.	Ledo Valley (West) Colliery, Lakhimpur.	Assam Railways and Trading Company, Limited.	Khudi, 28, (f), coal carrier.	Coal that fell from the roof at the top end of an opening rolled down on her.

APPENDIX I—contd.

No. on Register	Date and hour of Accident.	Name, Description and Situation of Mine.	Name of Owner or Company.	Name, age, sex and occupation of person killed.	CAUSE OF ACCIDENT AND REMARKS.
<i>6.—In and at shafts—Whilst ascending or descending by machinery.</i>					
6	3rd February, 12 P.M.	Wondalli Gold Mines, Wondalli, Hyderabad.	Wondalli (Deccan) Gold Mines, Limited.	Koolapa Korpa-swamy, cooly. 25, (m),	He was struck by a mining bar.
60	27th December, 6-30 P.M.	Kurhurbaree Colliery, Giridih.	East Indian Railway .	Daulet Meah, propping cooly. 45, (m),	He fell out of the cage whilst ascending.
<i>7.—In and at shafts—Falling into shaft from the surface.</i>					
26	6th June, 4-45 P.M.	Wondalli Gold Mines, Wondalli, Hyderabad.	Wondalli (Deccan) Gold Mines, Limited.	Madigvu Bheema, ringman. (m),	He fractured his skull.
20	11th June, 11-20 A.M.	No. 5 Pit, Desherghur, Burdwan.	Equitable Coal Company, Limited.	Chamari Gope, cooly. 30, (m),	He slipped whilst assisting in fixing the cage keys and fell down the shaft.
30	21st June, 4-45 P.M.	Wondalli Gold Mines, Wondalli, Hyderabad.	Wondalli (Deccan) Gold Mines, Limited.	Kurkunthi Bheema, cooly. (m),	.....
28	22nd June, 10 A.M.	No. 4 Pit, Damrah Colliery, Ranigunge.	Damrah Coal Company.	Pachan Bowri, bucketman. 18, (m),	He fell into the shaft while superintending the winding up of water. This accident would probably not have happened if the shaft and the trolley had been fenced, as they ought to have been.
37	16th August, 5 A.M.	Salanpur Colliery, Salanpur, Burdwan.	Borrea Coal Company, Limited.	Jadoo Dome, coolie. 32, (m),	The bucket caught the trolley at the top of the sinking shaft and trolley and deceased fell down the shaft.
39	18th August, 11 A.M.	Boodini Gold Mines, Boodini, Hyderabad.	Hyderabad (Deccan) Company.	Thoonithy Raja Saib carpenter's coolie. (m),	.....
44	13th September, 10 A.M.	Wondalli Gold Mines, Hyderabad.	Wondalli (Deccan) Gold Mines, Limited.	Kodaikal Mariappa, 35, (m), timber coolie.	.....
<i>8.—In and at shafts—Falling from a part of the way down.</i>					
2	1st January, 11 A.M.	Singareni Colliery, Yellandu, Hyderabad.	Hyderabad (Deccan) Company.	Lakai Lodth, coal-cutter. 30, (m),	He fell from the 'Kibble' whilst ascending the shaft.
4	23rd January, 3 P.M.	No. 8 Pit, Umaria Colliery, Rewah, Central Provinces.	Government . .	Doolari Ahir, hewer and trammer. 36, (m),	He probably got out of the bucket by mistake, thinking that where they had stopped was the bottom of the shaft.
10	8th March, 12 noon.	No. 10 Pit, Umaria Colliery, Rewah, Central Provinces.	Government . .	Punawa Maharua, mason coolie. 24, (m),	He fell off the platform or cradle on which he was working with others at fixing buntions. He fell about 10 feet and into 2 feet of water.

APPENDIX I—*contd.*

No. on Register.	Date and hour of Accident.	Name, Description and Situation of Mine.	Name of Owner or Company.	Name, age, sex and occupation of person killed.	CAUSE OF ACCIDENT AND REMARKS.
21	18th April, 8 P.M.	Boodini Gold Mines, Boodini, Hyderabad.	Hyderabad (Deccan) Company.	Gowdiah, signal coolie. (m),	.....
25	16th June, 8-30 A.M.	23D Pit, Kurhurbaree, Giridih.	East Indian Railway .	Gomia Ghatwarin, coal carrier. 20, (f),	The banksman and the khalasi were believed to be in fault for this accident and were sentenced by the Court to one month's rigorous imprisonment each, for allowing too many to ride in the cage at the same time and for not putting on the safety gate.
36	25th July, 5 P.M.	Wondalli Gold Mines, Wondalli, Hyderabad.	Wondalli (Deccan) Gold Mines Company.	Kongla Bistappa, muck boy. 15, (m),	.....
<i>10.—In and at shafts—Things falling from a part of the way down.</i>					
9	3rd March, 9-30 P.M.	Sodepore Colliery, Burdwan.	Bengal Coal Company, Limited.	Sabu Hari, mason. 32, (m), Ghansyam Sing, bucket man. 20, (m),	The cradle (bricking platform) at the sinking pit was apparently overloaded and fell down the shaft, pulling the crab-winch after it.
24	16th June, 7 P.M.	Madabpore Colliery, Burdwan.	Ditto .	Uttam Bawry, miner. 25, (m),	He was struck by a coal tub that fell out of the cage from a little way above the bottom of the shaft.
34	7th July, 4 P.M.	Wondalli Gold Mines, Hyderabad.	Wondalli (Deccan) Gold Mines Company.	Koodligi Sungumah, boring coolie. (m),	.....
56	1st December, 5 P.M.	No. 4 Pit, Charanpur, Asansol, Burdwan.	Reliance Coal Company, Limited.	Laltoo Maji, miner. 24, (m),	He was struck by a piece of coal that fell from out of a loaded bucket that was being raised up the shaft. The deceased was under or near to the shaft where he ought not to have been.
<i>12.—Miscellaneous Below Ground—Explosion of Fire-damp.</i>					
31	21st June, 8 P.M.	No. 8 Stenton, Takrai Mine, Khost, Baluchistan.	North-Western Railway.	Surbuland, miner. 32, (m),	The deceased went into a place that was fenced off.
<i>13.—Suffocation by Gases.</i>					
47	4th October, 5 A.M.	No. 3 Pit, Barmondia Colliery, Burdwan.	Damuda Coal Company, Limited.	Bhagoo Sing, pump khalasie. 30, (m),	He went down the shaft where foul gas might have been expected without first lowering a light to test the place.
47 MALES.					
49	12th October, 12-30 afternoon.	Takrai Khost Colliery, Baluchistan.	North-Western Railway.	(1) Ishwar Singh, 35, carpenter, (2) Khusal Singh, 30, coolie, (3) Kishin Singh, 27, coolie. (4) Dheer Singh, 26, contractor's supervisor.	

APPENDIX I—*contd.*

No. on Register.	Date and hour of Accident.	Name, Description and Situation of Mine.	Name of Owner or Company.	Name, age, sex and occupation of person killed.	CAUSE OF ACCIDENT AND REMARKS.
				(5) Meghraj, 33 mine mistry. (6) Lada, 30 coolie. (7) Rahim Baksh, 23 coolie. (8) Karim Baksh, 22 coolie. (9) Sani Hamoon, 37 coolie. (10) Feroze, 26 carpenter. (11) Imamdin, 30 carpenter. (12) Ismail, 28 coolie. (13) Gul Mahomed, 33 (14) Sharif, 31 (15) Sher Mahomed, 25 (16) M. Azim Din, 25 (17) Sher Dil, 20 (18) Cherag Hussain, 18 (19) Barkamid, 21 (20) Bajoor, 35 (21) Zamam, 25 (22) Sakhi, 35 (23) Abdul Hamid, 25 (24) Said Mahomed, 32 (25) Mir Aslam, 25 (26) Said Mir Mahomed, 25 (27) Rusul Gul, 25 (28) Fatteh Khan, 35 (29) Mahamdoo, 30 (30) Saleh Mahomed, 35 (31) Faiz Mahomed, 20 (32) Imam Baksh, 25 (33) Din Mahomed, 33 (34) Hasham, 30 (35) Dagari, 35 (36) Adak, 25 (37) Juman, 45 (38) Jian, 35 (39) Ahmed Ali, 30 (40) Mahomed Ali, 30 (41) Mahomed, 25 (42) Gulam Hassain, 30 (43) Gulam Kurd, 18 (44) Khirutta, 25 (45) Musa, 22 (46) Kasim, 30 (47) Said Rasul, 25 (35 miners).	
<i>14.—By Explosives.</i>					
3	2nd January 11 A.M.	Boodini Gold Mines, Hyderabad.	Hyderabad (Deccan) Company.	Jamaloo, 29, (m), driller.	.....
15	26th April, 2-30 P.M.	No. 3 Pit, Umaria Col- liery, Rewah, Central Provinces.	Government . . .	Ramdin Brahmin 30, m, hewer.	When thirling two heads a shot fired in, one blew through to the other and killed the man working there, who had not been properly warned.
32	7th July, 8 P.M.	Singareni Colliery, Yellandu, Hyder- abad.	Hyderabad (Deccan) Company.	Puncham Koormi, coal cutter. m,	.....
50	19th October .	Lomchanchi Mica Mine, Koderma, Ha- zaribagh.	Messrs. F. F. Chrestien & Co., Tisti.	—f, coolie woman.	She went too near the mouth of the mine when blasting was being done and was struck by some stones.

APPENDIX I—*concl'd.*

No. on Register.	Date and hour of Accident.	Name, Description and Situation of Mine.	Name of Owner or Company.	Name, age, sex and occupation of person killed.	CAUSE OF ACCIDENT AND REMARKS.
<i>15.—Irruptions of water and falling into water.</i>					
48	5th October, 9 A.M.	Jamooniah Mica Mine, Hazaribagh.	Messrs. F. F. Chrestien & Co., Tisri.	Murney Chamin, coolie woman. 35, (f),	Slipped off a ladder and fell into water.
<i>16.—On Inclined and Engine Plane.</i>					
11	23rd March, 9 P.M.	No. 24 New Field, Mohpani Colliery, Central Provinces.	Nurbudda Coal and Iron Company, Limited.	Damroo, pit carpenter. 27, (m),	Struck by run-away tubs.
38	23rd July, 6 P.M.	No. 12 Mine, Khost Colliery, Baluchistan.	North Western Railway.	Bharan, miner. 40, (m),	Fell 110 feet down a dip stenton.
<i>17.—By Trams or Tubs but not on inclined or Engine Planes.</i>					
55	23rd November, 1-40 P.M.	Singareni Colliery, Hyderabad.	Hyderabad (Deccan) Company.	Rabili Doorgee, Bundi Malloo, employed at building stopping. 18, (f),	.....
<i>19.—By other Causes.</i>					
33	5th July, 11 P.M.	Wondalli Gold Mines, Hyderabad.	Wondalli (Deccan) Gold Mines.	Wadgiri Runggat, boring coolie. 40, (m),	.....
On surface.					
<i>20.—By Machinery.</i>					
17	28th April, 9-30 A.M.	Sijooah Coal Mine, Gobindpur.	Messrs. Finlay, Muir & Co., Calcutta.	Ronglall Porah, contractor's cook. 24, (m),	.....
	17th November, 9 P.M.	Tamaria Colliery, Ranigunge.	Messrs. Koomar Ramashen Maleah Bahadur and Koomar Dokshenasher Maleah Bahadur.	Bashy Bourry, engine driver. 23, (m),	Deceased was oiling his engine when his mate started the engine and caused the accident.
<i>22.—On railways and tramways belonging to the mine.</i>					
8	27th February, 11-30 A.M.	Bhaganwala Colliery, Punjab.	North-Western Railway.	Kaman, coolie. 25, (m),	He fell from a bridge into a nullah some 30 feet below.
16	1st May, 11-30 P.M.	Serampore Colliery, Giridih.	East Indian Railway.	Emaman Meah, locomotive guard. 22, (m),	He was run over on the metre-gauge railway.
58	16th December, 12-30 afternoon.	Kurhurbaree Colliery, Giridih.	Ditto.	Nasaralli Meah, locomotive guard. 25, (m),	He did not apparently take any ordinary precautions, but occupied a very dangerous position whilst the engine was running.
<i>23.—Miscellaneous.</i>					
54	14th November 10 A.M.	Wondalli Gold Mines, Hyderabad.	Wondalli (Deccan) Gold Mines Company, Limited.	Rolbundy Baday Sahib, Air Compressor's driver.. 29, (m),	.....

SITUATION OF THE MINES PROVINCE.			Number of mines.	Output.	NUMBER OF PERSONS EMPLOYED.						
					BELOW GROUND.			ABOVE GROUND.			Totals below and above ground.
					Males.	Females.	Total.	Males.	Females.	Total.	
Coal . . .	Bengal . . .	206	Tons. 3,977,012	28,157	11,055	39,212	11,672	7,197	18,869	58,081	
	Hyderabad (Deccan).	5	401,216	5,592	1,083	6,675	1,371	444	1,815	8,490	
	Central Provinces.	8	321,145	3,087	352	3,439	654	102	756	4,195	
	Assam . . .	6	225,622	620	299	919	340	185	525	1,444	
	Punjab . . .	3	81,835	1,141	...	1,141	499	...	499	1,640	
	Baluchistan . .	9	16,628	297	...	297	133	5	138	435	
	Totals . . .	237	5,023,458	38,894	12,789	51,683	14,669	7,933	22,602	74,285	
Mica . . .	Bengal . . .	12 ¹	Maunds. 9,262	2,154	202	2,356	1,983	1,880	3,863	6,219	
	Madras . . .	31	5,534	...	...	...	2,666	2,381	5,047	5,047	
	Totals . . .	43	14,796*	2,154	202	2,356	4,649	4,261	8,910	11,266	
Gold . . .	Hyderabad (Deccan).	5	ozs. 8,368 ²	1,200	...	1,200	1,159	594	1,753	2,953	
	Madras . . .	1	325	90	...	90	102	10	112	202	
	Totals . . .	6	8,693	1,290	...	1,290	1,261	604	1,865	3,155	
Salt ³ . . .	Punjab . . .	3	Maunds. 21,43,699	787	588	1,375	98	10	108	1,483	
Slate . . .	Bengal . . .	5	Tons. 1,052	28	5	33	148	216	364	397	
Ghooting . .	Bengal . . .	4	1,177	...	...	...	21	17	38	38	
Manganese . .	Madras . . .	1	87,126	...	...	...	2,917	1,863	4,780	4,780	
Graphite . . .	Madras . . .	1	332	44	...	44	38	...	38	82	
	Travancore . .	1	...	196	...	196	421	362	783	979	
	Totals . . .	2	332†	240	...	240	459	362	821	1,061	
Magnesite . .	Madras . . .	1	84	...	...	...	15	25	40	40	
Stone Ballast	Bengal . . .	5	1,012,439	...	...	...	1,001	540	1,541	1,541	
	Rajputana . .	*	...	...	...	...	...	...	...	...	
	Totals . . .	...	...	...	...	...	...	...	...	...	
Clay . . .	Bengal . . .	1	366	2	2	4	6	4	10	14	
1899 Gross Totals . .		308	...	43,395	13,586	56,981	25,244	15,835	41,079	98,060	

FOOT NOTE.—(1) Incomplete. (2) Computed :—Returned as 7,020 oz. gold and 2,350 tons of ore.
(3) Mined only. * Dressed 5,243, undressed 9,553=14,796.

DIX II.

{ NUMBER OF MINES
 OUTPUT
 PERSONS EMPLOYED
 NUMBER OF DEATHS FROM ACCIDENTS
 DEATH-RATE per 1,000 EMPLOYÉS } for each Province.

NUMBER OF DEATHS FROM ACCIDENTS.			DEATH-RATE PER 1,000 PERSONS EMPLOYED.			SITUATION OF THE MINES PROVINCE.
Below ground.	Above ground.	Totals below and above ground.	Below ground.	Above ground.	Totals below and above ground.	
26	4	30	'66	'21	'52	Bengal . . .
8	...	8	1'21	...	'94	Hyderabad (Deccan).
4	...	4	1'18	...	'95	Central Provinces.
5	...	5	5'55	...	3'57	Assam . . .
1	1	2	'99	'2	1'25	Punjab . . .
49	...	49	164'98	...	112'64	Baluchistan .
93	5	98	1'80	'22	1'32	Totals . . .
3	...	3	1'30	...	'48	Bengal . . .
...	...	...	...	...	...	Madras . . .
3	...	3	1'30	...	'26	Totals . . .
12	1	13	10'00	'59	4'48	Hyderabad (Deccan.)
..	...	...	...	...	...	Madras . . .
12	1	13	9'23	'55	4'12	Totals . . .
...	...	...	...	...	...	Punjab . . . Salt.
...	...	...	...	...	...	Bengal . . . Slate.
...	...	...	...	...	...	Bengal . . . Ghooting.
...	...	...	...	...	...	Madras . . . Manganese.
...	...	...	...	...	...	Madras . . .
...	...	...	...	...	...	Travancore . . .
...	...	...	...	...	...	Totals . . .
...	...	...	...	...	...	Madras . . . Magnesite.
...	1	1	...	...	'65	Bengal . . .
...	1	1	...	...	...	Rajputana . . .
...	2	2	...	...	...	Totals . . .
...	...	...	...	...	...	Bengal . . . Clay.
108	8	116	1'90	'19	1'18	1899 Gross Totals.

APPENDIX III.

COMPARATIVE TABLES.

TABLE NO. I.—FATAL ACCIDENTS AND DEATHS Reported for 1899 and DEATHS FOR PREVIOUS YEARS AT ALL MINES shown according to causes.

PLACE AND CAUSE OF ACCIDENT.	1899.				Deaths in previous years.		
	Acci- dents.	Deaths.			1898.	1897.	1896.
		Males.	Females.	Totals.			
Falls of Ground.							
Fall of roof—stone, or coal	18	16	5	21	14	26	12
Fall of sides—stone, or coal	3	1	2	3	2	...	11
Fall of coal from working face	4	6	1	7	6	9	2
Total	25	23	8	31	22	35	25
Shaft Accidents.							
Overwinding	...	...	...	...	...	...	...
Ropes and chains breaking	...	...	...	...	...	...	...
Whilst ascending or descending by machinery	2	2	...	2	...	1	1
Falling into shaft from the surface	7	7	...	7	1	1	4
Falling from a part of the way down	6	5	1	6	3	4	...
Things falling from surface	...	...	...	...	...	...	...
Things falling from a part of the way down	4	5	...	5	1	...	1
Miscellaneous	...	...	...	...	...	...	...
Total	19	19	1	20	5	6	6
Miscellaneous Underground.							
Explosion of fire-damp	1	1	...	1	3	4	3
Suffocation by gases	2	48	...	48	...	1	1
By explosives	4	3	1	4	5	5	3
Irruptions of water, and falling into water	1	...	1	1	1	4	7
On inclined and engine planes	2	2	...	2	4	8	3
By trams or tubs, but not on inclined or engine planes	1	...	2	2	1	...	7
By machinery	...	...	...	...	...	...	...
By other causes	1	1	...	1	...	2	2
Total	12	55	4	59	14	24	26
Total Underground	56	97	13	110	41	65	57
On Surface.							
By machinery	2	2	...	2	2	...	...
Boilers or steam pipes bursting	...	...	...	...	...	...	...
On railways or tramways belonging to mine	3	3	...	3	4	2	5
Miscellaneous	1	1	...	1	6	10	4
Total on Surface	6	6	...	6	12	12	9
Gross Total in 1899	62	103	13	116	53	77	66
Total in preceding Year	43	44	9	53	...	...	...

APPENDIX III.

COMPARATIVE TABLES.

TABLE No. 2.—Showing the Numbers of Employes and Deaths at COAL, GOLD, MICA and OTHER MINES from 1896 to 1899.

YEAR.	EMPLOYÉS.			DEATHS.						
	Under ground.	On surface.	Total above and below ground.	Fall of ground.	Shaft accident.	Miscellaneous.	Total under ground.	Total on surface.	Total under and above ground.	
Coal.	1896	35,539	28,419	61,958	12	7	25	44	8	52
	1897	21,887	10,977	57,692	35	2	20	57	10	67
	1898	44,204	18,701	62,905	21	4	9	34	9	43
	1899	51,683	22,602	74,285	26	12	55	93	5	98
Gold.	1896	...	...	...	Not given					
	1897	1,221	883	2,104	...	4	4	8	1	9
	1898	1,074	981	2,028	...	1	5	6	1	7
	1899	1,290	1,865	3,155	2	8	2	12	1	13
Mica.	1896	2,413	3,174	5,587	13	...	...	13	1	14
	1897	19,687	25,943	46,130	...	...	...	...	1	1
	1898	12,728	18,631	31,118	1	...	...	1	1	2
	1899	2,356	8,910	11,266	1	...	2	3	...	3
Other Minerals.	1896	81	95	176	...	...	...	...	...	...
	1897	193	4,124	4,628	...	...	...	...	...	...
	1898	1,524	3,792	5,316	...	...	...	...	1	1
	1899	1,652	7,702	9,354	2	...	...	2	...	2

* Taken from the volume of "Financial and Commercial Statistics of British India" compiled by the Director General of Statistics, Calcutta.

APPENDIX III.

COMPARATIVE TABLES.

ACCIDENT DEATH-RATES.

TABLE No. 3.—NUMBER OF ACCIDENTS AND Ratio of Annual Mortality from different causes of ACCIDENTS in and about the Coal Mines in India, per 1,000 PERSONS EMPLOYED, in each year from 1896 to 1899.

YEAR.	NUMBER OF ACCIDENTS.			DEATH-RATE FROM ACCIDENTS PER 1,000 PERSONS.					
				Employed Underground.				Employed Above-ground from all Causes Above-ground.	Employed Above and Under ground.
	Under ground.	Above ground.	TOTAL.	By Falls of ground.	Shaft Accidents.	Miscellaneous.	From all Causes Under-ground.		
1896	...	...	...	'27	'16	'57	1'01	'43	'84
1897	37	7	44	'83	'04	'47	1'35	'56	1'12
1898	28	9	37	'47	'09	'20	'76	'48	'68
1899	40	5	45	'50	'23	1'06	1'80	'22	1'32

TABLE No. 4.—Death-rates per 1,000,000 tons of Mineral raised at Indian Coal Mines and at all the Mines in the UNITED KINGDOM, under the Coal Mines Regulation Act for 1899, shown according to causes, and the totals for 1898, 1897 and 1896.

	EMPLOYED UNDERGROUND.				Employed Above-ground from all Causes Above-ground.	Employed Above and Below ground.			
	By falls of ground.	Shaft accidents.	Miscellaneous.	From all Causes Underground.		1899.	1898.	1897.	1896.
India . . .	5'17	2'38	10'95	18'51	'99	19'51	9'3	16'4	13'5
United Kingdom	1'87	'29	1'26	3'43	'49	3'93	4'2	4'3	4'9

REPORT
ON THE
INSPECTION OF MINES IN INDIA,
FOR THE
YEAR ENDING THE 31ST DECEMBER
1900.

EDITED BY
GEO. A. STONIER, A.R.S.M., F.G.S.,
PROVISIONAL CHIEF INSPECTOR OF MINES IN INDIA AND OFFICIATING INSPECTOR OF MINES IN INDIA,

FROM NOTES BY
JAMES GRUNDY, Esq.,
INSPECTOR OF MINES IN INDIA,
AND THE
LATE G. F. READER, Esq., F.G.S.,
OFFICIATING INSPECTOR OF MINES IN INDIA.



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REPORT ON THE INSPECTION OF MINES IN INDIA FOR THE YEAR ENDING 31ST DECEMBER 1900.

Edited by **GEO. A. STONIER, A.R.S.M., F.G.S.,** *Provisional Chief Inspector of Mines, from brief Notes by* **MR. JAMES GRUNDY** *and the late* **MR. G. F. READER, F.G.S.**

INTRODUCTION.

In compliance with instructions contained in the Government of India letter R. and A. No. $\frac{2094}{15}$, and dated the 26th December 1893, the following report of the Inspector of Mines in India has been prepared for the year ending 31st December 1900. Mr. James Grundy held office from January till 3rd October 1900, when sick leave was granted to him and the late Mr. G. F. Reader was appointed to officiate. Mr. Reader performed the duties of the office till 12th March 1901, when he died of cholera in Madras. Mr. Stonier took charge on 26th April 1901 and has experienced great difficulty in obtaining the information necessary for the compilation of this report. The delay in presentation and difficulty of preparation is due to four causes :—

- (1) The time occupied in obtaining the annual returns relating to mines. As the Mining Rules are not in force it has been impossible to insist on the prompt submission of returns.
- (2) Changes in the holder of the office of Inspector of Mines.
- (3) The incomplete character of the notes left by the officers who previously had charge. It is possible that Mr. Reader had prepared part of the report, but a draft has not been discovered and the notes in the official files are brief and incomplete.
- (4) A large increase of office work caused by the passing of the Indian Mines Act of 1901.

The Report deals with the work performed by Messrs. Grundy and Reader, and does not refer to the duties carried out by the writer because he did not hold office during the year 1900. It will be seen that much interesting information which should have been included has been omitted, and many of the details are incomplete. The valuable tables published by Mr. J. E. O'Connor, C.I.E., (Director-General of Statistics), have been freely used, but they do not contain all the figures required. It is hoped that, as the Mining Bill received the assent of the Governor General in Council on 23rd March 1901 and gives definite powers to the Chief Inspector of Mines, the next report will be much fuller and will contain the information which falls legitimately within its scope.

Under the various headings some of the points which appear to be most important are indicated.

The form of the report differs slightly from previous issues and has been altered so as to accord with similar publications in other countries. The writer has had a personal acquaintance extending over several years with colonial practices, but has followed the method adopted by Prof. Le Neve Foster, F.R.S., etc., in England, because it is more suitable for the required purpose.

The Report is divided into four sections :—

- I.—Persons employed,
- II.—Output of minerals,
- III.—Accidents,
- IV.—General Remarks,

followed by four appendices, *viz.* :—

- Appendix A.—Table showing Output and Number of Persons employed in each province.
- | | |
|---|--------------------------------------|
| „ | B.—List of Fatal Accidents. |
| „ | C.—Table of Statistical Information. |
| „ | D.—Ditto ditto. |

SECTION I.

PERSONS EMPLOYED.

The total number of persons employed in and about the mines during the year 1900 was 133,128 (including 24,587 in Mysore), or 14,271 more than in the previous year. The increase is due chiefly to the opening of new collieries. The returns from the ruby mines are stated, but the figures are exclusive of persons engaged in mining for iron, jade, stone ballast, clay, etc., as it has been impossible to ascertain, even approximately, the number of miners thus employed.

Table No. I shows the average number of persons engaged daily and is arranged according to the mineral wrought and employment, whether above or below ground: a comparison with the year 1899 is also stated. Details for each province and of the figures under the heading of other minerals are given in Appendix A.

TABLE No. 1.

Persons Employed in and about mines.

	COAL.		GOLD.		MICA.		OTHER MINERALS.	
	No.	Comparison with previous year.	No.	Comparison with previous year.	No.	Comparison with previous year.	No.	Comparison with previous year.
BELOW GROUND.								
Male	44,463	+5,569	13,413	+48	2,494	+340	1,129	...
Female	17,206	+4,417	...	—	2,100	+1,898	650	...
TOTAL	61,669	+9,986	13,413	+48	4,594	+2,238	1,779	...
ABOVE GROUND.								
Male	18,338	+3,669	9,906	+748	3,553	—1,096	4,422	...
Female	10,402	+2,469	1,707	—138	1,370	—2,891	1,975	...
TOTAL	28,740	+6,138	11,613	+610	4,923	—3,987	6,397	...
GRAND TOTAL	90,409	+16,124	25,026	+658	*9,517	—1,749	*8,176	—762

* Returns incomplete.

SECTION II.

OUTPUT OF MINERALS.

The following table shows the output arranged under four headings, and gives the value in rupees (1 rupee = 1s. 4d.) and a comparison with the previous year:—

TABLE No. 2.

Total Output of Minerals.

Mineral	Quantity.	Comparison with the previous year.	Value in Rupees.	Comparison with the previous year.
				₹
Coal	6,095,428 tons	+1,002,168 tons	2,00,95,268	+41,37,967
Gold	497,993 ozs.	+ 40,973 ozs.	2,82,85,123	+24,38,884
Mica	916 tons	+295½ tons.	.....	.....
Iron	*59,620 „	—1,912 „	1,47,005	.....
†Other Minerals . . . . .	.....	.....	.....	.....

* Returns incomplete.

† For details see Appendix A.

Coal.—The improvement in the output of coal for the year 1900 as compared with 1899 is marked and is due to two causes, (1) consumption in India, (2) export. In the future the former will increase, but does not give an immediate prospect of phenomenal expansion. The export trade has been rapidly advancing during the last few years and nearly all the available markets have now been attacked. It is held that as a general rule Indian is not equal to English coal, but the proper methods of using it are becoming better understood. Every one agrees that the trade is now on a firm basis, and that there is likely to be a continuous increase in demand during the next few years (though temporary slumps are possible in the event of over production), but it is difficult to estimate what the amount of the increase will be. The question was considered very carefully by the Committee which reported in March 1901 on the working of the Calcutta Port Trust, and it was then pointed out by Mr. Cable that the export trade from Calcutta of 2,345,758 tons was likely to increase to 3,000,000 tons per year during the next three years.

The output per person employed is as follows:—

Country.	Year.	TONS PER PERSON EMPLOYED.	
		Underground.	Above and below ground.
India	1900	99	67
	1899	97	68
Great Britain and Ireland	1899	400	320

The figures given for India include coke, the tonnage of which cannot be given separately. A small number of briquettes are manufactured.

Gold.—The increase in the gold output is due to Kolar (Mysore). Hyderabad has yielded a smaller amount than in the previous year. The mine in Burma which was discovered by Mr. C. M. P. Wright has increased its output owing to the treatment of tailings in a cyanide plant recently erected. Table 3 shows the yield since work was commenced: the figures have not been previously published.

TABLE NO. 3.
Output of the Choukpazat Gold Mine (Burma).

Year. (1st October to 30th September.)	Tons milled.	Gold from the plates.	Fine gold from Cyanide.
		Ozs.	Ozs.
1894-95	686	103·0	...
1895-96	1,918	540·6	...
1896-97	2,692	925·1	...
1897-98	2,366	958·7	...
1898-99	3,025	1357·9	...
1899-1900	1,747	639·8	33·0
1900-1901 (October to 31st March)	1,477	595·2	604·9

Mica and other minerals.—There is a slightly larger output for Mica and of the remainder Manganese is the most important. Details of the other minerals mined are given in Appendix A, and it will be seen that smaller quantities of Graphite Corundum and Magnesite have been won. The return from the Ruby

Mines in Burma is included in Appendix A, and the following figures are taken from the tables published by the Director-General of Statistics :—

TABLE No. 4.

Mineral.	Province.	Output.	Value.
Amber	Burma	9 cwt.	^R 1,540
Jade	"	1788 "	1,63,396
Tourmaline	"	0.65 "	18,600
Diamonds	Central India	169 carats	11,372

It has been impossible to obtain reliable figures for the output of ballast, clay, etc.

SECTION III.

ACCIDENTS.

During the year 1900, fifty-six fatal accidents were reported and with the exception of Mysore (details of the accidents in Mysore are given in the Annual Report of Mr. W. J. Smeeth, B.A., A.R.S.M., etc., State Geologist, etc., of Mysore) most of the Native States have furnished returns. The list forms Appendix B and it is to be regretted that the details are not more complete, for this appendix should be one of the most valuable portions of the report and indicate the direction in which the rules under the Indian Mines Act of 1901 are specially required. The accidents are classified according to place and cause in table No 5, which also shows the number of deaths and gives a comparison with the previous year. In view of the fact that the output of mineral has increased, it is gratifying to note that there is a decrease of 5 and 43 respectively in the number of fatal accidents and deaths; but non-fatal accidents have not been reported, and the comparison between 1900 and the preceding year is therefore incomplete.

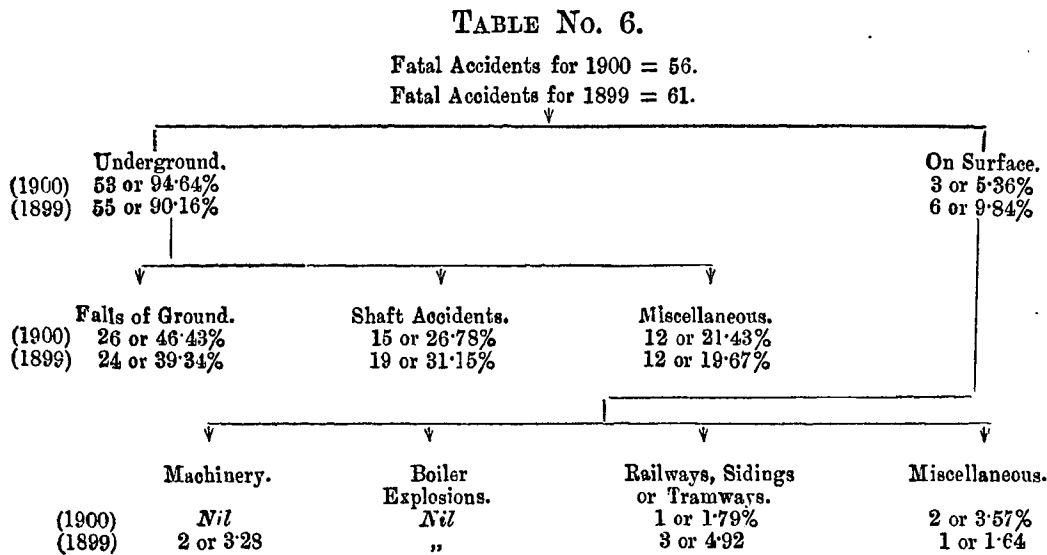
TABLE No. 5.
Accidents and Deaths.

Place and Cause of Accident.		Acci- dents.	DEATHS.			COMPARISON WITH THE PREVIOUS YEAR.				
			Male.	Female	Total.	Acci- dents.	Deaths.			
							Male.	Female	Total.	
UNDERGROUND.	Falls of Ground.	Falls of Roof-Stone or Coal . . .	19	23	3	26	+ 1	+ 7	— 2	+ 5
		Falls of Sides-Stone or Coal . . .	3	3	1	4	+ 1	+ 2	...	+ 2
		Falls of Coal from Working Face . .	4	4	1	5	...	— 2	...	— 2
		Total .	26	30	5	35	+ 2	+ 7	— 2	+ 5
	Shaft Accidents.	Overwinding	1	2	...	2	+ 1	+ 2	...	+ 2
		Ropes or Chains breaking	...	...	...	...	...	...	...	...
		Whilst Ascending or Descending by Machinery.	7	8	...	8	+ 5	+ 6	...	+ 6
		Falling into Shaft from Surface . .	2	2	...	2	— 5	— 5	...	— 5
		Falling from Part Way down . . .	1	1	...	1	— 5	— 4	— 1	— 5
		Things falling from Surface . . .	2	4	...	4	+ 2	+ 4	...	+ 4
		Things falling from Part Way down .	1	1	...	1	— 3	— 4	...	— 4
		Miscellaneous	1	1	...	1	+ 1	+ 1	...	+ 1
	Total .	15	19	...	19	— 4	...	— 1	— 1	
	Carried over .		41	49	5	54	— 2	+ 7	— 3	+ 4

TABLE No. 5—*contd.*

Place and cause of accident.		Acci- dents.	DEATHS.			COMPARISON WITH THE PREVIOUS YEAR.			
			Male.	Female.	Total.	Acci- dents.	Deaths.		
							Male.	Female.	Total.
Brought forward		41	49	5	54	— 2	+ 7	— 3	+ 4
UNDERGROUND— <i>continued.</i>	Miscellaneous Underground.								
	Explosions of Fire-damp or Coal dust	...	...	...	...	— 1	— 1	...	— 1
	Suffocation by Natural Gases	...	...	...	...	— 2	— 43	...	— 48
	By Explosives	3	6	...	6	— 1	+ 3	— 1	+ 2
	Irruptions of water, or Falling into water.	1	1	...	1	...	+ 1	— 1	...
	On Inclined or Engine Planes	1	1	...	1	— 1	— 1	...	— 1
	By Trams or Tubs, but not on Inclined or Engine Planes.	4	3	1	4	+ 3	+ 3	— 1	+ 2
	By Machinery	...	...	...	...	...	...	...	...
	Sundries	3	2	1	3	+ 2	+ 1	+ 1	+ 2
	Total	12	13	2	15	...	— 42	— 2	— 44
TOTAL UNDERGROUND		53	62	7	69	— 2	— 35	— 5	— 40
ON SUR- FACE.	By Machinery	...	...	...	...	— 2	— 2	...	— 2
	Boiler Explosions	...	...	...	...	...	...	...	...
	Railways, Sidings or Tramways	1	1	...	1	— 2	— 2	...	— 2
	Miscellaneous	2	2	...	2	+ 1	+ 1	...	+ 1
TOTAL ON SURFACE		3	3	...	3	— 3	— 3	...	— 3
GROSS TOTAL		56	65	7	72	— 5	— 38	— 5	— 43

Table No. 6 shows the percentage of accidents under each sub-heading :—



In Table No. 7 the classification has been made according to the mineral worked and a comparison with the previous year is shown. The details of this table forms Appendix B.

TABLE No. 7.

YEAR.	COAL.				MICA.				GOLD.†				OTHER MINERALS.				TOTAL.			
	Accidents.	DEATHS.			Accidents.	DEATHS.			Accidents.	DEATHS.			Accidents.	DEATHS.			Accidents.	DEATHS.		
		Male.	Female.	Total.		Male.	Female.	Total.		Male.	Female.	Total.		Male.	Female.	Total.		Male.	Female.	Total.
1900†	49	56	6	62	5	7	1	8	1	1	...	1	1	1	...	1	56	65	7	72
1899†	45	87	11	98*	3	1	2	3	12	13	...	13	1	1	...	1	61	102	13	115

* One accident caused the loss of 47 lives.
† Excluding Mysore.

DEATH-RATES.

The death-rates are given below on Table No. 8. Only coal and mica are shown, as the number of deaths in gold and other mines is very small. The deaths in Kolar (Mysore) are not included in this return.*

TABLE No. 8.

Mineral.	Country.	Year.	Death-rate per 1,000 persons employed.	Number of tons raised per life lost.
Coal	India	1900	·69	98,312
		1899	1·32	51,259
	United Kingdom	1899	1·25	254,715
Mica	India	1900	·84	...
		1899	·26	...

It will be noticed that the death-rate per 1,000 persons employed in India compares favourably with the death-rate of operations under the English Coal Mines Act. There is a growing tendency, however, in England to calculate death-rates according to the tonnage of mineral raised, because the time spent by the miners under the dangerous conditions, is an important factor. Viewed from this standpoint, India compares unfavourably with England, but it must be remembered that allowance should be made for the fact that it takes four times as many miners in India as in England to raise a ton of coal.

* Since the above was written, it has been ascertained that the number of deaths in Mysore during 1900 was as follows :—
Underground 55. Aboveground 8. Total 63.
The number of persons employed is stated in Appendix A.

TABLE No. 9.

COAL MINES IN INDIA.

Diagram showing number of tons of coal raised per life lost and number of lives lost per 1,000,000 tons of coal raised.

Lives lost per 1,000,000 tons mined.	Tons per life lost.	YEAR.						Tons per life lost.	Lives lost per 1,000,000 tons mined.
		1895.	1896.	1897.	1898.	1899.	1900.		
5									5
6	120,000							120,000	6
7									7
8	110,000							110,000	8
9									9
10	100,000							100,000	10
11									11
12	90,000							90,000	12
13	.								13
14	80,000							80,000	14
15									15
16	70,000							70,000	16
17									17
18	60,000							60,000	18
19									19
20	50,000							50,000	20
21									21
22	40,000							40,000	22
23									23
24	30,000							30,000	24
25									25
26	20,000							20,000	26
27									27

To accompany report of the Inspector of Mines in India for the year 1900. Figures for previous years are taken from report for 1899. .

GEO. A. STONIER,
Prov. Chief Inspector of Mines in India.

UNDERGROUND.

FALLS OF GROUND.

Under this heading is comprised 46% of the total number of fatal accidents, and of these 40·25% happened at coal mines, 4·10% at mica, ·82 at gold, ·82% at other mines. During 1899 one accident caused the loss of 47 lives, but in 1900 none of the accidents have caused more than 3 deaths, and the average death-rate per accident does not exceed $1\frac{1}{2}$. The total number is, however, high and a perusal of the details leads to the conclusion that there has been neglect of ordinary precautions. In one case men had been trying to break down coal, but had failed, and when sitting down beneath the coal the latter fell on them. In another case a man had loosened a prop and was pushing against it, in order to move a second piece of timber, when the former fell and with it the roof came down on him. Accident No. 50 was apparently due to faulty management, for at the time of injury coal carriers were passing along a road while overhead the roof was being taken down. Two accidents are due to attempts to rob pillars and happened to old experienced miners. It is difficult to stop this dangerous practice, but it is necessary that the employes should clearly understand that going by stealth into abandoned portions of the mine cannot be allowed. It is in these cases that Mining Rules will assist the managers as well as protect the coolies.

Two accidents occurred at the mica mines.

In all countries falls of ground are responsible for a large proportion of the accidents, but they can be minimised by—

- (1) careful and frequent examination of the working places by the officials of the mine,
- (2) education of the miner,
- (3) a sufficient use of timber,
- (4) rapid driving of working faces.

Up to the present time coal has been chiefly won in India by driving galleries, but in some of the mines the dangerous task of removing the pillars has been commenced; and it is essential that special attention should be paid to precautions against falls of ground, so that the loss of life may be reduced to a minimum.

SHAFT ACCIDENTS.

The relative number of Shaft Accidents to the other causes is shown on Table No. 10, which also gives the number for two districts in Britain.

TABLE No. 10.

Country	Year	Falls of Ground.	In Shafts.	Miscellaneous.
India	1899	25=44·64%	19=33·93%	12=21·43%
„	1900	26=49·06%	15=28·30%	12=22·64%
Liverpool	1899	32=59·2%	7=12·9%	15=27·8%
West Scotland	1899	22=55·0%	5=12·5%	13=32·5%

Comparing 1900 and the previous year the percentage is in favour of the former, but 28·30% is too high, particularly when it is considered that comparatively few miners are lowered in cages and so much of the coal-raising in India is by inclines and not from shafts.

There was one accident from overwinding. Four men were in the bucket when the engine-man raised instead of lowering it, and took it over the pulley: two men were killed. If a safety hook had been attached to the bucket the accident might have been avoided. Of the seven accidents while ascending or descending by machinery it was impossible in one case to decide from the

evidence why the two men should have stepped out of the cage when half way down. In another accident the man lost his hold and fell to the bottom of the shaft while he was being lowered down the shaft: he was supported only by his toe which rested in the hook attached to the rope—the practice is common, but cannot be commended. The two accidents from things falling from the surface were avoidable. Several men were at the bottom of shaft while others were working at the mouth; an end piece of wood was sawn off and fell from the surface on to the miners at the bottom of the shaft—two persons were killed. In the second case, the mouth of the shaft was not kept clear, and the ascending bucket struck a trolley at the surface, dislodging a piece of wood which fell into the shaft and on to a miner, killing him instantly. The fate of Mr. Keelan who fell into a sump emphasizes the necessity of fencing off dangerous places.

MISCELLANEOUS UNDERGROUND.

There was one slight explosion of fire-damp, but it was not attended with fatal results. The place had been properly examined and found to be safe, but when a man entered with a naked light an explosion occurred.

Three accidents have occurred from explosions of dynamite. In two of them several men were working at the bottom of deep pits several hours after firing a series of shots, and were engaged in drilling new holes when one of the shots (thought to have exploded) unexpectedly went off. It is generally admitted now-a-days that the firing of shots by electrical means has lessened the danger of mis-fires; the operation also is simple, inexpensive, easily learned and completely under the control of the operator, who is stationed at a safe distance away. In one of the cases referred to, an attempt seems to have been made to explode too many shots at one time.

In addition to the shaft accident alluded to by which Mr. Keelan lost his life, another death was due to falling into water.

Inclined planes caused one death: a drawbar broke and the tub rushed down the plane and overturned on to the deceased, who was seated by the side of and below the working portion of the incline.

Deaths due to tubs are four in number, but details are not given of two of them. The other two were accidental, and were due to carelessness on the part of the individuals themselves. In one case the man tried to pass to the back of a moving tub, but was struck by it and died a day later; there was plenty of room on the opposite side of the road.

Under sundries the death of a woman is noted. Her clothes caught fire from her own lamp and she ran down the drive: she fell to the ground, and died six hours later.

ON SURFACE.

One death seems to have been due to heat-apoplexy, and should not perhaps be included under Mining Accidents. The second was due to carelessness in shunting, and the third happened to a rope-rider who, on arrival at the surface, failed to detach the shackle, and was carried up and jammed to death against the supporting beam of the engine.

The accident which happened at Sudamdeeh (Jherria) was not reported, but an enquiry was held at the suggestion of the Sub-Divisional Officer. The coal dips at about 48°, and had been partly excavated leaving an over-hanging roof, several tons of which fell and killed three coolies. There was no question that the work as then carried on was dangerous to the lives of 65 persons employed in the quarry, and the Sub-Divisional Officer was advised to stop the operations until they were under the control of a competent manager.

A study of the accidents leads to the conclusion that some of them were preventable and that well-considered rules under the Indian Mines Act of 1901 will both assist the managers of the mines and protect the lives of the miners.

SECTION IV.

GENERAL REMARKS.

The tours occupied 166 days, of which 120 were spent in inspecting mines and investigating accidents; in all 134 separate underground inspections were made.

Mr. Grundy's tours were as follows:—

- (1) January 23rd to 26th in RaneeGUNGE and Jherria.
- (2) February 9th to 16th in Giridih, Barakar, Hazaribagh.
- (3) March 9th to 20th, Barakar, Sanctoria and Salanpore.
- (4) April 2nd to July 12th Hazaribagh and Tisri.

Tours (1) (2) and (3) were made for the purposes of enquiring into fatal accidents and inspecting coal mines.

During No. (4) tour most of the mica mines in the Hazaribagh and Tisri Districts were examined.

The reports published during the year were (1) on the accident at Khost Colliery (Baluchistan) which happened on 12th October 1899, and (2) on the Coal mines near Quetta and Mach (Baluchistan).

Mr. Reader assumed office on 3rd October and toured on the following dates:—

- (1) October 4th to 29th, Khost (Baluchistan) and Dandot.
- (2) December 7th to 20th, in Gourangdi, Sitarampore, Jherria and Barakar.

Several accidents were investigated and a number of mines were inspected: the reports were furnished to the Government of India, Local Governments and owners of mines. The chief points to which Mr. Reader called attention were:

- (1) Necessity for two outlets from a mine.
- (2) Ventilation: a number of mines were found to be badly ventilated.
- (3) Necessity for timbering certain of the working places.
- (4) The danger from fires lit by miners underground.

The visits and suggestions of the Inspector were generally received in a friendly spirit, but in more than one case admission to the mines was practically refused.

The conclusion arrived at after a perusal of the reports is that some of the properties are well managed (*e.g.*, at E. I. R. collieries in Giridih, where in 1900 528,000 tons were raised with a daily average of 7,232 persons employed and during the year only two persons were killed), but other collieries need inspection. A number of the native-owned mines are badly ventilated, and some of the quarries (*e.g.*, at Sudamdeeh, Jherria, where the lives of 65 persons were endangered) are worked on dangerous principles. One mine with an output of 1,000 tons per month is managed by four brothers, each having charge for a period of three months.

GEO. A. STONIER,

Provl. Chief Inspector of Mines in India.

CALCUTTA ;
30th July 1901.

APPENDIX A.

PERSONS EMPLOYED AND OUTPUT OF MINERALS ARRANGED ACCORDING TO PROVINCES.

Situation of the Mines Province.		Number of Mines.	Output.	NUMBER OF PERSONS EMPLOYED						Totals below and above ground.	
				BELOW GROUND.			ABOVE GROUND.				
				Males.	Females.	Total.	Males.	Females.	Total.		
Coal	Assam . . .	6	Tons. 216,736	580	332	912	282	156	438	1,350	
	Baluchistan . .	9	23,281	391	...	391	233	1	234	625	
	Bengal . . .	238	4,954,965	38,617	15,135	48,752	15,328	9,950	25,278	74,030	
	Burma . . .	1	10,228	68	34	102	124	20	144	246	
	Central Provinces .	8	173,115	1,156	219	1,375	515	36	551	1,926	
	Central India . .	1	161,483	1,938	35	1,971	230	13	243	2,214	
	Hyderabad (Deccan)	5	469,291	5,254	1,448	6,702	1,141	202	1,343	8,045	
	Punjab . . .	2	74,983	1,399	...	1,399	427	...	427	1,828	
	Rajputana (Bikaner)	1	9,240	62	3	65	58	24	82	147	
Totals .		271	6,095,428	44,463	17,206	61,669	18,338	10,402	28,740	90,409	
Mica	Bengal . . .	101	Tons. 429	1,653	1,661	3,314	1,947	105	2,052	5,366	
	Madras . . .	30	487	841	439	1,280	1,606	1,265	2,871	4,151	
	Totals .		131	916	2,494	2,100	4,594	3,553	1,370	4,923	9,517
Gold	Burma* . . .	1	oz. 1,236	45	...	45	75	...	75	120	
	Hyderabad (Deccan)	5	2,473	190	...	190	104	25	129	319	
	Madras . . .	...	4	...	...	...	...	...	...	...	
	Mysore . . .	...	494,280	13,178	...	13,178	9,727	1,682	11,409	24,587	
	Totals .		...	497,993	13,413	...	13,413	9,906	1,707	11,613	25,026
Corundum . Madras . . .		12	Tons. 69½	100	100	200	...	...	...	200	
Graphite	Madras . . .	1	400	112	...	112	77	...	77	189	
	Travancore . .	2	1,429	171	...	171	371	211	582	753	
	Totals .		3	1,829	283	...	283	448	211	659	942
Magnesite . Madras . . .		2	225	...	...	...	20	60	80	80	
Manganese . Madras . . .		12	92,458	...	...	...	2,538	1,704	4,242	4,242	
Rubies, Sapphires and Spinel.		Burma . . .	2	Carats. **231,012	...	...	...	1,177	...	1,177	1,177
Salt . . . Punjab . . .		2	Tons. 79,996	746	550	1,296	151	...	151	1,447	
Slate . . . Bengal . . .		2	Feet. 241,256	...	...	...	88	...	88	88	
Gross Totals . { 1900 1899		...	...	61,499 55,468	19,956 13,584	81,455 69,052	36,219 33,290	15,454 16,515	51,673 49,805	133,128 118,857	

* Excluding alluvial gold.

** Rubies . 214,856 carats.
Sapphires . 7,339 "
Spinel . 8,917 "

APPENDIX B.

LIST OF FATAL ACCIDENTS.†

No. on Register.	Date and hour of Accident.	Name, Situation and Description of Mine.	Name of Owner or Company.	Name, Age, Sex and Occupation of Person killed.	Cause of Accident and Remarks.
UNDERGROUND.					
FALLS OF GROUND.					
<i>Falls of Roof, Stone or Coal.</i>					
5	25th January, 5 P.M.	No. 6 Level, Sanctoria Colliery, Barakar, Bengal.	Bengal Coal Company, Limited.	Bhobhani Singh, 28 (m), Sirdar.	While he was wedging down some stone, it fell unexpectedly, cut off one hand and severely injured both of his legs. He died twelve hours after the occurrence.
8	11th January, 9 P.M.	Kalikapur Colliery, Banknia, Raneegunge, Bengal.	N. Banerji and Brothers.	John Pauri, 30 (m), Coal-cutter, Bipun Banri, 31 (m), Coal-cutter.	Four men were sitting under some coal which they had tried to break down. The coal fell unexpectedly. Two of the men were instantly killed and two injured.
11	17th February, 1 P.M.	Salanpore Colliery, Sitarampore, Bengal.	Borrea Coal Company.	Manoo Bowry, 30 (m), Coal-cutter. Rajor Rajowar, 35 (m), Coal-cutter. Diuoo Bowry, 36 (m),	
19	31st March, 5 A.M.	Kabwet Colliery, Upper Burma.	Burma Coal Company, Limited.	(m)	A piece of the roof, weighing about $\frac{1}{2}$ cwt. fell on him. Instantly killed.
25	29th May, 4-30 P.M.	Adit No. 3, Stenton No. 9, Khost Colliery, Laluchistan.	North-Western Railway.	Kishan Singh, 46 (m), Prop-man.	* While he was pushing against a loosened prop, it fell, and the roof collapsed on him. He died twelve hours later.
27	14th June, 4 P.M.	Rohantand Mine, Pachrookhi, Hazaribagh, Bengal, (Mica.)	Messrs. F. F. Chretien and Company.	Chitamon Roy, 50 (m), Coolie. Hossemi Mian, 14 (m), Coolie. Daulat Ray, 14 (m), Coolie.	They took shelter in an abandoned mine during a storm. The roof fell on them.
29	22nd June, 10-30 A.M.	Dandot Colliery, Punjab.	North-Western Railway.	Haider, 22 (m), Contractor's, Coal-mate.	* While he was assisting a timberman, a large piece of stone fell on him.
32	21st June, 10-30 A.M.	Lodo Valley East Colliery, Lakhimpur, Assam.	Assam Railways and Trading Company, Limited.	Rupsa, 24 (m), Timber-setter.	* He was in a kneeling position, setting timber between two props 6 feet apart. Coal weighing about 40 lbs. was dislodged and fell on him, a distance of 5 feet.
34	26th June, 11 A.M.	No. 12, Khost Colliery, Baluchistan.	North-Western Railway.	Ghulam Haider, 27 (m), Miner.	* While he was drilling a hole in a stone band, a large slab fell from the roof and pinned his leg against the plank on which he stood. He died an hour later from rupture of spleen and shock.
35	22nd July, 4 P.M.	Namdang Colliery, Lakhimpur, Assam.	Assam Railways and Trading Company, Limited.	Bhuplal, 25 (m), Coal-cutter.	* One prop had been placed in position and he was preparing a hole for the other, when a piece of stone weighing about 1 cwt. fell and crushed him.
37	31st July, 10-30 P.M.	No. 1 Incline, Navigation Colliery, Sitarampur, Bengal.	Navigation Coal Company, Limited.	Lakhan Majee, 50 (m), Miner.	He went into a fenced-off portion of the mine to strip a pillar. Coal fell on him.

* Information furnished by Mine Manager. † Excluding Mysore.

LIST OF FATAL ACCIDENTS—continued.

No. on Register.	Date and hour of Accident.	Name, Situation and Description of Mines.	Name of Owner of Company.	Name, Age, Sex and Occupation of Person killed.	Cause of Accident and Remarks.
Underground—continued.					
FALLS OF GROUND—continued.					
<i>Falls of Roof—continued.</i>					
38	3rd July, 4 P.M.	Batten Pit, Singareni Colliery, Yellandu, Hyderabad.	Hyderabad (Deccan) Company, Limited.	Jogah Lutchee, 14 (f), Filler. Perraka Raundee, 17 (m), Filler.	* Stone fell on them.
39	23rd July, 7-45 P.M.	Batten Pit, Singareni Colliery, Yellandu, Hyderabad.	Hyderabad (Deccan) Company, Limited.	Maharatta Ittia, 38 (f), Filler.	* Stone fell on her.
43	20th September, 11 A.M.	Tikak Colliery, Lakhimpur, Assam.	Assam Railways and Trading Company, Limited.	Haytia, 25 (m), Filler.	* While he was filling a basket, roof-coal, weighing about 2 cwts., fell on him.
47	26th September, 8-40 P.M.	No. 13 Pit, Singareni Colliery, Yellandu, Hyderabad.	Hyderabad (Deccan) Company, Limited.	Singapoorapoo, 35 (f), Filler.	* While she was pulling the haulage rope down, a piece of stone fell on her. Instantly killed.
49	6th November, 2 A.M.	No. 4 Pit, Toposi Colliery, Raneegunge, Bengal.	Raneegunge Coal Association, Limited.	Khago Sing, 26 (m), Coal-cutter.	While he was wedging down coal it fell on him.
52	23rd October, 11 A.M.	Namdang Colliery, Lakhimpur, Assam.	Assam Railways and Trading Company, Limited.	Lochmon, 26 m), Coal-cutter.	* Drive was timbered within 2 feet of the face. Stone from the roof at the face fell on him. Died shortly after the accident.
53	10th December, 7-30 A.M.	Gangoitya Colliery, Barakar, Bengal.	Bengal-Nagpur Coal Company, Limited.	Kunjoo Bauri, 34 (m), Coal-cutter. Rakhal Bauri, 18 (m), Coal-cutter.	They removed a prop and coal fell on them. Instantly killed.
55	17th December, 11-30 A.M.	Namdang Colliery, Lakhimpur, Assam.	Assam Railways and Trading Company, Limited.	Biāsakoo, 26 (m), Filler.	* Coal fell on him.
<i>Falls of Sides, Stone or Coal.</i>					
4	20th January, 5 P.M.	Ghatariab, Hazaribagh, Bengal. (Mica.)	Messrs. F. F. Chrestien and Company	Bandhori Gopin, 18 (m), Coolie.	*A side wall slipped. One man was killed and two others were injured.
36	27th July, 3 P.M.	Bhura Mine, Koderma Forest, Hazaribagh. (Mica.)	Messrs. F. F. Chrestien and Company.	Kaila Chamar, 35 (m), Driller. Rewli Ghatnarni, 22 (f), Coolie.	A side wall fell. Two persons were killed and four were injured.
54	13th December, 12 noon.	Dundot Colliery, Punjab.	North-Western Railway.	Nadar Shah, 30 (m), Coolie.	*He was assisting to repair the return air-way, when stone fell on him from the side.
<i>Falls of Coal from Working Face.</i>					
2	10th January, 3 P.M.	Dhoondabad Colliery, Sitarampur, Bengal.	New Manbhumi Coal Company, Limited.	Siboo Majee, 34 (m), Coal-cutter.	Coal fell on him, fracturing the base of the skull.
24	29th May 2-15 A.M.	No. 7 Incline, Gourangdi Colliery, Bengal.	Barakar Coal Company, Limited.	Baijal Maji, 55 (m), Miner. Kamar Mejhan, 52 (f), Coal-carrier.	While they were under-cutting the corner of a pillar, the coal fell unexpectedly on them. Both were experienced miners and knew the danger of robbing pillars.
31	21st June 1-30 P.M.	Pahandih Colliery, Giridih, Bengal.	Bengal Coal Company, Limited.	Jafferli Mea, 35 (m), Head Sirdar.	A prop was freed by a fall of coal and fell on him, fracturing his skull.

* Information furnished by Mine Manager.

LIST OF FATAL ACCIDENTS—continued.

No. on Register.	Date and hour of Accident.	Name, Situation and Description of Mine.	Name of Owner or Company.	Name, Age, Sex and Occupation of Person killed.	Cause of Accident and Remarks.
Underground—continued. FALLS OF GROUND—continued. <i>Falls from Working Face—continued.</i>					
50	14th November, 8 A.M.	Kasidanga Colliery, Charanpur, Bengal.	Messrs. U. C. Chakravarti and Company.	Singrai Majee, 26 (m), Coal-cutter.	Coal fell on him.
SHAFT ACCIDENTS. <i>Overwinding.</i>					
23	8th May, 3 P.M.	No. 2 Pit, Sitalpore Colliery, Burdwan, Bengal.	Bengal Coal Company, Limited.	Nara Majee, 22 (m), Stone-cutter. Budhoo Teli, 30 (m), Stone-cutter.	Three men were in a bucket ready to descend. The engineman instead of lowering it, raised it over the top of the pulley. Two men were killed. Bucket was not provided with a detaching hook.
<i>Ropes or Chains Breaking.</i> None. <i>Whilst Ascending or Descending by Machinery.</i>					
17	7th April, 2 30 P.M.	No. 5 Pit, Jamuria Colliery, Burdwan, Bengal.	Equitable Coal Company, Limited.	Lalit Singh, 30 (m), Miner.	He fell off the bucket while the latter was being raised to surface.
26	6th June, 11 A.M.	No. 2 Pit, Toposi Colliery, Raneegunge, Bengal.	Raneegunge Coal Association, Limited.	Soochand Bowry, 28 (m), Bailing-coolie. Pudian Chamur, 22 (m), Bailing-coolie.	They stepped out of the cage when half-way down the shaft and fell to the bottom.
28	18th June 9 A.M.	No. 7 Shaft, Seebpore Colliery, Churnpore, Asansol, Bengal.	Katras Jherria Coal Company, Limited.	Guiram Bowrie, 18 (m), Fireman.	He fell out of the bucket when half-way down the shaft which is 133 feet deep.
33	29th June, 7 A.M.	No. 1 Shaft, Bhuskajori Colliery, Churnpore, Asansol, Bengal.	Barakar Coal Company, Limited.	Gopi Baurie, 26 (m), Sinker.	*He let go the rope when half way to the surface.
40	5th August, 3 A.M.	Singareni Colliery, Yellandu, Hyderabad.	Hyderabad (Deccan) Company.	Roomat, 35 (m), Trammer.	*Fracture of the spine, etc.
45	17th October, 12-30 P.M.	No. 6 Pit, Dishergar Colliery, Burdwan, Bengal.	Equitable Coal Company, Limited	Boodia Bowrie, 21 (m), Onsetter.	He fell from the ascending cage.
56	6th December, 7 P.M.	Seejooah Colliery, Katras, Jherria, Bengal.	Messrs. Finlay, Muir and Company.	Mahomed Ally, 50 (m), Pump-khalassie.	While descending with one foot in the hook attached to the rope, he somehow lost his hold and fell to pit-bottom.
<i>Falling into Shaft from Surface.</i>					
3	6th January, 6 A.M.	Seebpore Colliery, Asansol, Bengal.	Katras-Jherria Coal Company, Limited.	— (m). Tubman	He rushed a tub on to the iron plates at the pit-bank; it collided with and broke the closed iron gate. He fell with the tub to the bottom of the shaft which is 80 feet deep.
12	18th February, 7-15 P.M.	Shampore Colliery, Barakar, Bengal.	Shampore Coal Company, Limited.	James Sham Dass, 22 (m), Sirdar.	He was found at the bottom of the pit and apparently had fallen from the surface on the previous day, which had been a holiday. The pit-mouth was properly fenced.
<i>Falling from Part Way down.</i>					
15	3rd March, 7 A.M.	Wondalli Mines, Hyderabad (Deccan.) (Gold.)	Wondalli Gold Mining Company.	Yellagutti Thirakappa, 35 (m), Muck-coolie.	—

LIST OF FATAL ACCIDENTS—continued.

No. on Register	Date and hour of accident.	Name, Situation and Description of Mines.	Name of Owner or Company.	Name, Age, Sex and Occupation of Person killed.	Cause of Accident and Remarks.
Underground—continued. SHAFT ACCIDENTS—continued. <i>Things Falling from Surface.</i>					
16	2nd April, 11 A.M.	Sitalpur Colliery, Burdwan, Bengal.	Bengal Coal Company, Limited.	Churaman Kallal, 30 (m), <i>Stone-cutter.</i> Jhori Shaik, 36 (m), <i>Fitter.</i>	Several men were at pit-bottom and a carpenter was working at the mouth of the shaft above them. An end piece of timber fell into the pit striking two of the men.
18	7th April, 5-30 P.M.	No. 5 Pit, Luchipur Colliery, Sitarampur, Bengal.	Damuda Coal Company, Limited.	Lotoo Singh, 35 (m), <i>Sinker.</i> Dasoo Roy, 36 (m), <i>Sinker.</i>	While they were working at pit-bottom, a trolley at the mouth was struck by an ascending bucket, and a plank was thrown from the trolley into the pit, and on to them.
<i>Things Falling from Part Way down.</i>					
21	24th April, 9-30 P.M.	Sodepore Colliery, Sitarampur, Bengal.	Bengal Coal Company, Limited.	Bhatoo Singh, 20 (m), <i>Stone-cutter.</i>	A stone fell on him from the side of the shaft.
<i>Miscellaneous.</i>					
44	6th October, 11 A.M.	No. 5 Pit, Damuda Colliery, Sitarampur, Bengal.	Damuda Coal Company, Limited.	Mr. H. C. Keelan, (m), <i>Assistant.</i>	He descended the pit at 10 A.M. with three miners, visiting the eastern and northern galleries, and returned alone to the pit-bottom. An hour later his hat was seen to be floating on the water in the sump which was not fenced. The body was recovered about noon.
MISCELLANEOUS UNDERGROUND. <i>Explosions of Fire-damp.</i> None. <i>Suffocation by Natural gases.</i> None. <i>By Explosives.</i>					
20	19th April, noon.	No. 4 Pit, Luchipur Colliery, Sitarampur, Bengal.	Damuda Coal Company, Limited.	Khavo Gope, 37 (m), <i>Sinker.</i> Mitan Gope, 35 (m), <i>Sinker.</i> Hiramon Telly, 32 (m), <i>Sinker.</i> Khiro Koirn, 28 (m), <i>Sinker.</i>	Pit is 210 feet deep. Six charge of dynamite were fired by hand at 6 A.M. in the sump, and after Siradar's examination the men (eight in number) were clearing the debris and drilling side-holes. At noon one of the charges exploded unexpectedly. Two men were instantly killed and two others died during afternoon.
30	19th June, 5 A.M.	No. 31 Pit, Khooldia Colliery, Giridih, Bengal.	Bengal Coal Company, Limited.	Giridhaymea, 22 (m), <i>Sinker.</i>	A number of shots were fired by hand, and eight hours later one of them exploded unexpectedly. One man was instantly killed, five seriously injured and four slightly hurt.
51	24th November, 1 P.M.	Singareni Colliery, Yellandu, Hyderabad.	Hyderabad (Deccan) Company, Limited.	Ramkishan Ahir, (m), <i>Coal-cutter.</i>	* Three charges were fired in a heading. After the first explosion he returned to an adjoining heading and the second charge blew through the heading. Instantly killed.

* Information furnished by Mine Manager.

LIST OF FATAL ACCIDENTS—continued.

No. on Register.	Date and hour of Accident.	Name, Situation and Description of Mine.	Name of Owner or Company.	Name, Age, Sex and Occupation of Person killed.	Cause of Accident and Remarks.
Underground—continued.					
MISCELLANEOUS UNDERGROUND—continued.					
<i>Irruptions of Water or Falling into Water.</i>					
46	21st October	Latwya Mine, Koderma, Hazaribagh, Bengal. (Mica.)	Chota Nagpur Mica Syndicate, Limited.	(m), Coolie	Whilst engaged in removing timber, he slipped from a ladder and was drowned.
<i>On Inclined or Engine Planes.</i>					
1	9th January, 4 P.M.	Sodepore Colliery, Burdwan, Bengal.	Bengal Coal Company, Limited.	Dharia Chamar, 14 (m), Coal-cutter.	When a drawbar broke the tub ran down the incline, and overturned on to the deceased who was seated below the working portion of the line. Instantly killed.
<i>By Trams or Tubs but not on Inclined or Engine Planes.</i>					
9	13th February, 1-45 P.M.	Chanck Colliery, Burakar, Manbhum, Bengal.	Bengal Coal Company, Limited.	Lunga Majhin, 35 (f), Coal-carrier.	She stepped in front of four loaded tubs which were being brought along a level road to the pit-bottom. Fatally injured.
10	30th January, 12-15 P.M.	Singareni Colliery, Yellandu, Hyderabad.	The Hyderabad (Deccan) Company.	Babil Lingadao, 18 (m), Water-bailer.	—
22	16th April, 6-30 A.M.	Singareni Colliery, Yellandu, Hyderabad.	The Hyderabad (Deccan) Company.	Gungadun Looh, 30 (m), Coal-cutter.	—
42	4th August, 9 A.M.	Mayo Mine, Khewra, Punjab. (Salt.)	Government of India.	Fazal Chirag, 20 (m), Trammer.	He had been pushing the front one of a pair of wagons and tried to pass to the back of the other one. He was struck by the wagon and died 11 days after the injury.
BY MACHINERY.					
None.					
<i>Sundries.</i>					
—	26th January, 11 P.M.	South-River Workings, Mohpani, Central Provinces.	Nerbudda Coal and Iron Company, Limited.	Tijia, 12 (f), Coal-carrier	*Her clothes accidentally caught fire from her own lamp. Lockjaw set in, and she died six hours after the occurrence.
13	3rd March, 11-30 P.M.	Khost Colliery, Baluchistan.	North Western Railway.	Deen Mahomed, 25 (m), Miner.	While hauling a bag up a stenton, he became giddy and fell to a depth of 170 feet. Instantly killed.
41	11th August, 5 P.M.	Tellabodu Mine, Indukurpet, Nellore, Madras. (Mica.)	A. Subha Naidu and Company.	Chulla Puttadu, 20 (m), Coolie.	He fell on a sharp stone, while running away from an expected fall of the roof.
ON SURFACE.					
BY MACHINERY.					
None.					
BOILER EXPLOSIONS.					
None.					
RAILWAYS OR TRAMWAYS.					
6	26th January, 4 A.M.	Kustoor Colliery, Jherria, Bengal.	Raneegunge Coal Association.	Ramlal Mumaza, 25 (m), Loader.	He was assisting to hand-shunt on a siding and was run over.

* Information furnished by Mine Manager.

LIST OF FATAL ACCIDENTS—*concluded.*

No. on Register.	Date and hour of Accidents.	Name, Situation and Description of Mine.	Name of Owner or Company.	Name, Age, Sex and Occupation of Person killed.	Cause of Accident and Remarks.
On Surface—continued.					
MISCELLANEOUS.					
14	17th March, 5 P.M.	Seebpore Colliery, Raneegunge, Bengal.	Katras-Jherria Coal Company, Limited.	Udoymahatta, 60 (m), <i>Surface-coolie.</i>	While engaged with three others in shunting, he fell down suddenly and died, probably from heat apoplexy.
48	26th October, 1 A.M.	No. 1 Incline, Singareni Colliery, Yellandu, Hyderabad.	Hyderabad (Deccan) Company.	Nagularajiga, 26 (m), <i>Rope-rider.</i>	* After coming up the incline on the lower rope, he failed to detach the shackle at the landing stage, and was jammed to death against the supporting beam of the engine.

* Information furnished by Mine Manager.

APPENDIX C.

TABLE OF FATAL ACCIDENTS FROM 1897 TO 1900 AND DEATHS AT ALL MINES FROM 1894 TO 1900, CLASSIFIED according to PLACE AND CAUSE.*

Place and Cause of Accident.		Number of Separate Fatal Accidents.				Number of Deaths resulting therefrom.						
		1897.	1898.	1899.	1900.	1894.	1895.	1896.	1897.	1898.	1899.	1900.
UNDER GROUND.	Falls of Ground.											
	Falls of Roof-Stone, or Coal	10	10	18	19	18	29	12	26	14	21	26
	Falls of Sides-Stone, or Coal	—	2	2	3	7	6	11	—	2	2	4
	Falls of Coal: om Working Face	7	5	4	4	2	2	2	9	6	7	5
	Total	17	17	24	26	27	37	25	35	22	30	35
	Shaft Accidents.											
	Overwinding	—	—	—	1	1	—	—	—	—	—	2
	Ropes or Chains breaking	—	—	—	—	2	—	—	—	—	—	—
	Whilst ascending or descending by Machinery.	1	—	2	7	4	4	1	1	—	2	8
	Falling into Shaft from Surface	1	1	7	2	5	2	4	1	1	7	2
	Falling from Part Way down	4	3	6	1	1	3	—	4	3	6	1
	Things falling from Surface	—	—	—	2	1	—	—	—	—	—	4
	Things falling from Part Way down	—	1	4	1	2	1	1	—	1	5	1
	Miscellaneous	—	—	—	1	2	1	—	—	—	—	1
	Total	6	5	19	15	18	11	6	6	5	20	19
	Miscellaneous Underground.											
	Explosions of Fire-damp or Coal dust	2	2	1	—	13	2	3	4	3	1	—
	Suffocation by Natural Gases	1	—	2	—	1	22	1	1	—	48	—
	By Explosives	5	3	4	3	5	15	3	5	5	4	6
	Irruptions of water, or Falling into water.	4	1	1	1	1	1	7	4	1	1	1
	On Inclined or Engine Planes	8	4	2	1	—	1	3	8	4	2	1
	By Trams or Tubs, but not on Inclined or Engine Planes.	—	1	1	4	8	—	7	—	1	2	4
	By Machinery	—	—	—	—	—	—	—	—	—	—	—
	Sundries	2	—	1	3	2	1	2	2	—	1	3
	Total	22	11	12	12	30	42	26	24	14	59	15
	TOTAL UNDERGROUND	45	33	55	53	75	90	57	65	41	109	69
ON SUR-FACE.												
	By Machinery	—	2	2	—	1	2	—	—	2	2	—
	Boiler Explosions	—	—	—	—	—	—	—	—	—	—	—
	Railways Sidings or Tramways	2	4	3	1	5	2	5	2	4	3	1
	Miscellaneous	7	6	1	2	4	5	4	10	6	1	2
TOTAL ON SURFACE	9	12	6	3	10	9	9	12	12	6	3	
GROSS TOTAL		54	45	61	56	85	99	66	77	53	115	72

* Excluding Mysore.

APPENDIX D.

DEATH RATES FROM ACCIDENTS AT ALL MINES FROM 1896 TO 1900.*

Year.			PERSONS EMPLOYED.			NO. OF DEATHS FROM ACCIDENTS.			DEATH-RATE FROM ACCIDENTS PER 1,000 PERSONS EMPLOYED.			
			Under-ground.	Above ground.	Total.	Under-ground.	Above ground.	Total.	Under-ground.	Above ground.	Total.	
Coal.	1896	.	.	35,539	28,419	61,958	44	8	52	1.02	.43	.84
	1897	.	.	21,887	10,977	57,692	57	10	67	1.35	.56	1.12
	1898	.	.	44,204	18,701	62,905	34	9	43	.76	.48	.68
	1899	.	.	51,683	22,602	74,285	93	5	98	1.80	.22	1.32
	1900	.	.	61,669	28,740	90,409	59	3	62	.95	.10	0.69
Gold.*	1896	.	.	...	...	...	..	...	...	...	...	...
	1987	.	.	1,221	833	2,104	8	1	9	6.55	1.13	4.28
	1898	.	.	1,074	981	2,208	6	1	7	5.58	1.02	3.17
	1899	.	.	1,290	1,865	3,155	12	1	13	9.23	.55	4.12
	1900	.	.	235	204	439	1	0	1	4.25	...	2.28
Mica.	1896	.	.	2,413	3,174	5,587	13	1	14	5.38	.31	2.41
	1897	.	.	19,687	25,943	46,130	...	1	1	...	.03	.02
	1898	.	.	12,728	18,631	31,118	1	1	2	.08	.05	.06
	1899	.	.	2,356	8,910	11,266	3	...	3	1.30	...	.26
	1900	.	.	4,594	4,923	9,517	8	0	8	1.74	...	.84
Other Minerals.†	1896	.	.	81	95	176	...	...	...	...	...	...
	1897	.	.	193	4,124	4,628	...	...	...	...	...	...
	1898	.	.	1,524	3,792	5,316	...	1	1	...	.26	.18
	1899	.	.	1,652	7,703	9,354	2	...	2	1.21	...	.21
	1900	.	.	1,779	6,397	8,176	1	0	1	.56	...	.12

* Excluding Mysore.

† The minerals included under this heading are given in Appendix A.

Bureau of Mines Inspection in India.

REPORT

OF THE

CHIEF INSPECTOR OF MINES IN INDIA,

UNDER

The Indian Mines Act, VIII of 1901,

FOR THE

YEAR ENDING THE 31ST DECEMBER

1901.

BY

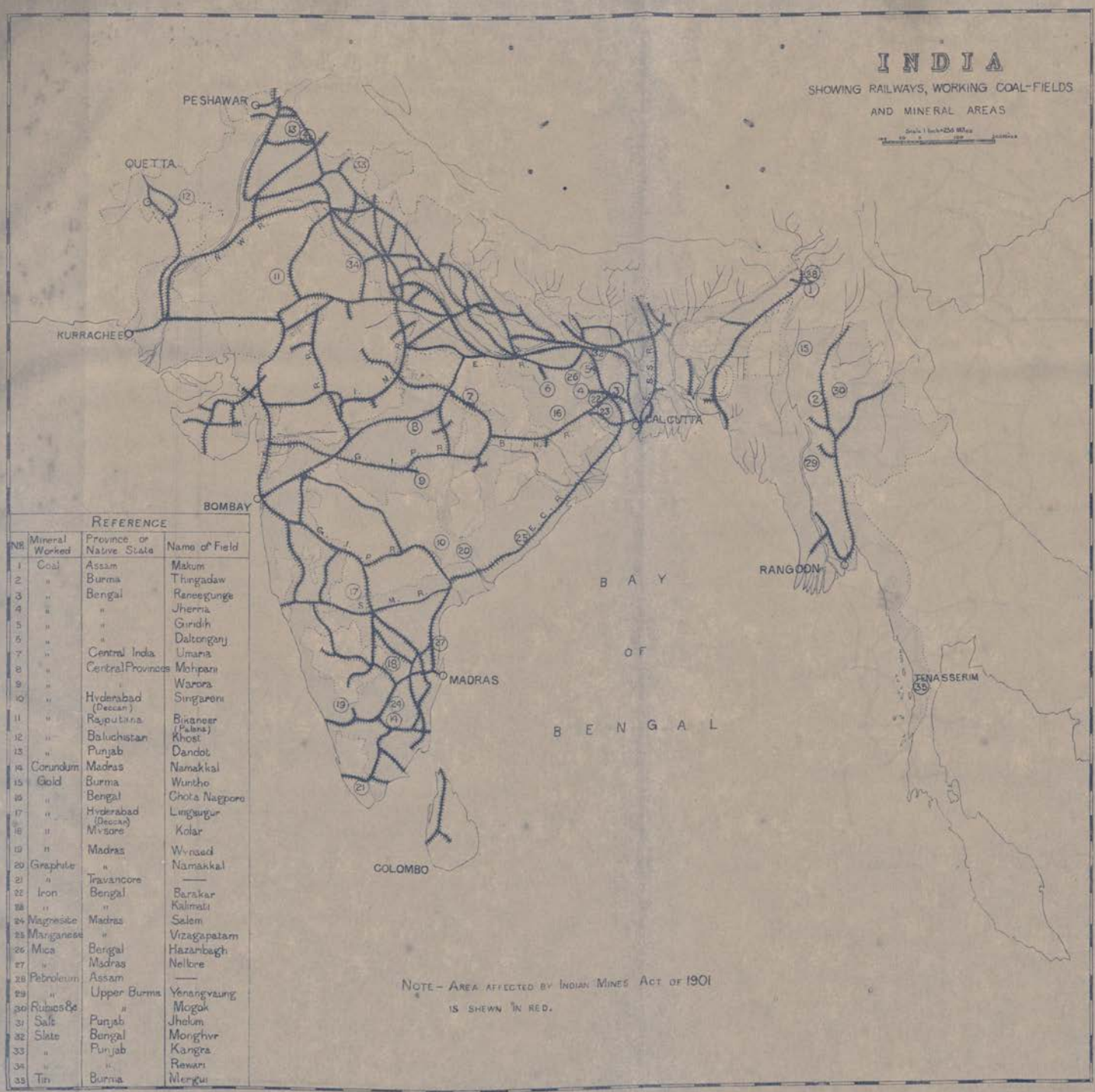
GEO. A. STONIER, A.R.S.M., F.G.S.,
CHIEF INSPECTOR OF MINES IN INDIA.



CALCUTTA :

OFFICE OF THE SUPERINTENDENT OF GOVERNMENT PRINTING, INDIA,
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INTRODUCTION.

In compliance with instructions contained in the Government of India Resolution, Department of Revenue and Agriculture, No. 1-37-10, dated 2nd January 1902, the following first report of the Chief Inspector of Mines in India has been prepared. It takes the place of the annual report of the Inspector of Mines and deals specially with the working of the Indian Mines Act (Act VIII) which received the assent of the Governor General in India on 22nd March 1901.

The Act applies to excavations for minerals in British India including British Baluchistan, the Sonthal Parganas and the Pargana of Spiti, any part of which is deeper than 20 feet below the level of the adjacent ground or extends beneath the subjacent ground. The Native States are not affected by the Act: they are numerous, occupy $\frac{2}{5}$ of the Empire and include several fields, *e.g.* Kolar gold-field (Mysore), Singareni coal-field (Hyderabad, Deccan), and Umaria coal-field (Rewah, Central India).

The Returns of Output and Labour are not at present prescribed by law, but have been voluntarily rendered by Mine Owners to District Officers. As in previous years, particulars have also been supplied from various Native States and some shallow workings in British India (not under the Mines Act), and have been embodied in this report. Wherever possible, statistics have been stated for natural divisions such as coal-fields as well as for Provinces.

The papers published by the Geological Survey of India, the Reviews of Mineral Production by Dr. George Watt, and the tables of the Director-General of Statistics have been freely used in the preparation of this report, which is accompanied by a map of India showing the position of the chief mines and quarries.

The orders of Government give 1st March as the date for the Local Government Reviews with District Notes and Tables to reach the Chief Inspector, and the 15th of April for the report of the latter to reach Government, but as the Resolution was only published in January 1902, it was impossible for the District Officers to collect the information in time to comply with the orders.

The following Reviews have been received :—

Courg	21st January.
North-West Frontier Province	15th February.
Hyderabad Assigned Districts	17th „
Punjab (part)	13th March.
Madras	23rd „
Rajputana	25th „
Agra and Oudh	25th „
Assam	27th „
Central Provinces	3rd April.
Central India	8th „
Bombay	12th „
Burma	30th May.

The report is divided into five sections—

- Section I.—Persons employed.
- „ II.—Output.
- „ III.—Accidents.
- „ IV.—Prosecutions.
- „ V.—General Remarks.

Followed by four Statements—

- Statement I.—Mines open during any part of the year.
- „ II.—Mines opened or closed down during the year.
- „ III.—Prosecutions under the Indian Mines Act of 1901.
- „ IV.—List of Accidents.

Section I.—Persons employed.

During the year 1901, the total number of persons employed daily on an average in and about the mines and quarries was 142,491 (101,553 men, 34,318 women and 6,620 children), or 6,325 more than in the previous year. Of these persons, 93,231 worked under ground in mines and inside the quarries, and comprised 70,175 men, 20,595 women, and 2,461 children. Of the 49,260 surface workers, 31,378 were men, 13,723 women, and 4,159 children. The figures are not complete, because they do not include the number of persons employed in working limestone, igneous rocks, etc. Although the statistics show the importance of mining in India, the value of the industry should not be gauged solely by the number of persons employed in winning mineral—the number of those who deliver it, such as the employes of Railway and Shipping Companies, Merchants, etc., should also be taken into account.

According to the Census taken in 1901, there were 209,776,777 persons, comprising 105,977,807 males and 103,798,970 females, in the rural area affected by Act VIII.

Great Britain employs 908,412, Germany 733,683, United States (part) 506,830, and France 309,815 persons, but the numbers include workers in quarries for some minerals not given in Indian returns. India heads the list for British Colonies, Dependencies, and Possessions.

The phrase “daily on an average ” has generally been taken by mine managers in India to mean the average for 300 working days in the year.

It is of interest and importance to note that Professor C. Le Neve Foster, D.Sc., F.R.S., etc., is not in favor of the method of stating labour according to a daily average, but suggests a census system taken on a certain day (not a holiday) twice or four times a year.

Figure 1. gives the number of persons employed from 1896 to 1901.

The thin line represents for each year the labour under ground, the thick line shows the number above ground, and the dotted line denotes the total number under and above ground. The curves show the advance which has taken place.

FIG. 1.
Number of Persons employed at Quarries and Mines in India from 1896 to 1901,

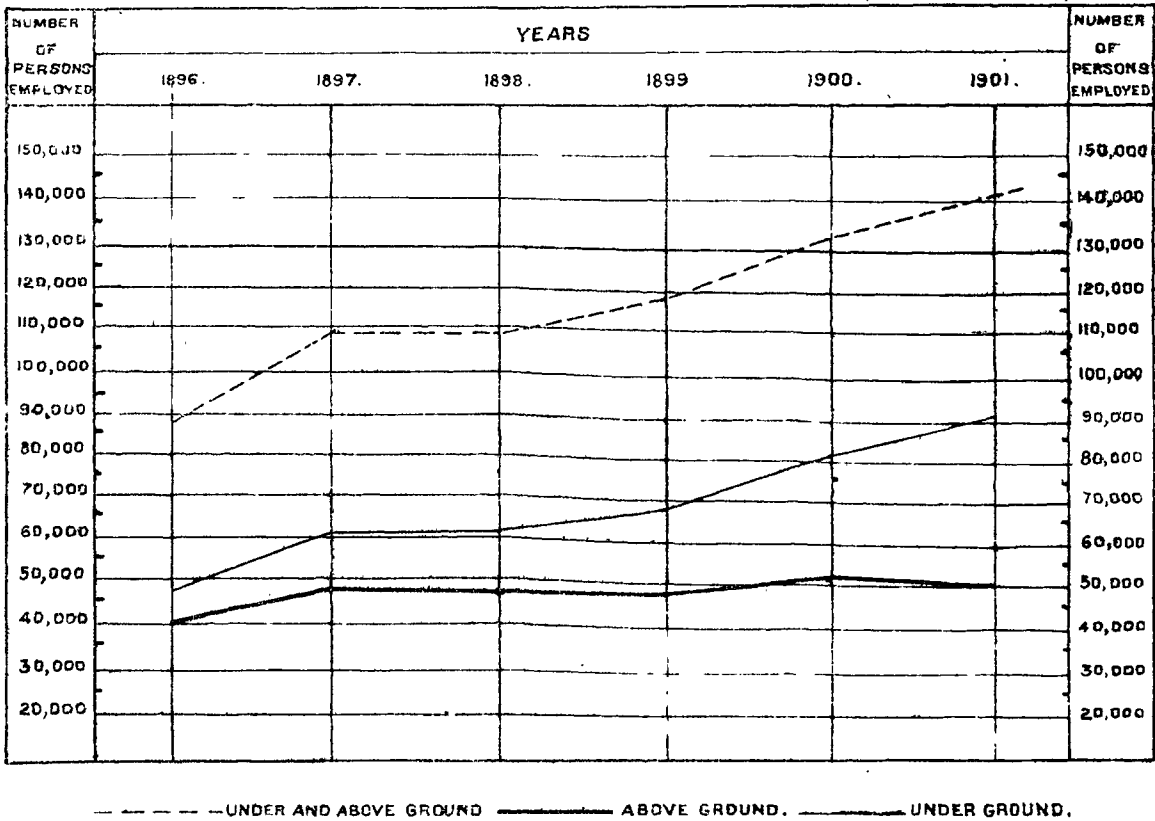


Table No. 1 shows the average daily number of persons employed at each of the different classes of mines and quarries in India during the year 1901. Coal heads the list with 95,309 persons (63,331 men, 27,955 women, and 4,023 children), or an increase of 700% compared with 1880, 200% with 1890, and 6% with 1900.

Gold comes next with 25,506 workers, or an increase of 480 compared with the preceding year.

9,219 persons were employed in mica mining.

Manganese engaged 4,230, gems 1,897, and slate 778 workers.

The production of salt, petroleum, clay, limestone and sandstone must give employment to a large number of people, though the figures cannot be even approximately stated.

TABLE NO. 1.

Average daily number of persons employed at Mines and Quarries in India during the year 1901.

KIND OF MINERAL.	No. of mines and quarries.	UNDER GROUND IN MINES AND INSIDE THE QUARRIES.				ABOVE GROUND AND OUTSIDE THE QUARRIES.				Total under and above ground.	Comparison with the preceding year.
		Men.	Women.	Children (under 12).	T. tal.	Men.	Women.	Children (under 12).	T. tal.		
Asbestos . . .	...	...	...	...	...	...	...	...	...	...	...
Clay . . .	3	40	23	...	68	10	20	...	40	108*	
Coal . . .	320	44,959	18,570	2,139	65,668	18,372	9,385	1,884	29,641	95,309	+5,942
Copper ore . . .	2	50	...	...	50	20	20	...	40	90*	
Corundum . . .	4	57	54	...	111	4	64	53	121	232	+32
Gems {	Amber . . .	...	...	...	...	...	...	...	...	...	
	Diamonds . . .	2	45	35	80	25	5	...	30	110*	
	Jade . . .	...	...	...	...	...	...	...	...	...	
	Rubies . . .	6	1,164	...	1,164	623	...	...	623	1,787*	+60
	Sapphires . . .										
	Spinel . . .	...	...	...	...	...	...	...	...	...	
Gold . . .	19	14,392	...	...	14,392	9,161	1,756	197	11,114	25,506	+480
Graphite . . .	4	344	...	8	352	330	93	194	617	969	+27
Gravel and sand . . .	...	...	...	...	...	...	...	...	...	...	
Igneous rocks . . .	...	...	...	...	...	...	...	...	...	...	
Iron ore . . .	4	200	...	...	200	800	500	210	1,510	1,710*	
Laterite . . .	...	...	...	...	...	...	...	...	...	...	
Limestone . . .	1	84	91	22	197	89	47	5	141	338*	
Magnesite . . .	1	3	3	...	6	3	3	...	6	12	-68
Manganese ore . . .	12	1,699	1,011	222	2,932	560	458	280	1,298	4,230	-12
Mica . . .	130	5,588	186	23	5,797	885	1,209	1,328	3,422	9,219*	-298
Petroleum . . .	...	...	...	...	...	...	...	...	...	...	
Salt . . .	15	839	597	29	1,465	136	...	...	136	1,601†	+154
Sandstone . . .	...	...	...	...	...	...	...	...	...	...	
Slate . . .	6	331	20	18	369	305	104	...	409	778	+8
Steatite (Soap stone) . . .	...	...	...	...	...	...	...	...	...	...	
Tin ore . . .	39	380	...	...	380	55	49	8	112	492	
Total for 1901 . . .	568	70,175	20,595	2,461	93,231	31,378	13,723	4,159	49,260	142,491	+6,325

* Incomplete.

† Mines only.

The preceding table (No. 1) gives figures for India. The Mines Act affects British India only, and during 1901, the following workings in British India were exempted by the Government of India from the operation of Act VIII.

TABLE No. 2.

Workings described in the Gazette as follows.	Province.	Date of Notification.
Kankar, stone, and laterite quarries .	Bombay . . .	12th June 1901.
* Do. do. .	Madras . . .	17th July 1901.
* Clay pits and metal, moorum, and stone quarries.	Central Provinces .	23rd July 1901.
Stone quarries	Ajmer-Merwara . .	10th October 1901.
* Kankar, stone, and laterite quarries .	Lower Bengal . . .	11th October 1901.
Salt quarries	Punjab (Kohat District)	25th October 1901.
Kankar, stone, and laterite quarries .	North Western Provinces (In the stone mahals of Mirzapur District and Kumaon Division.)	15th November 1901.

* Local Government may declare any of these quarries to be subject to Act VIII.

Kankar is the nodular form of limestone found in recent deposits. Moorum is gravel. The number of persons exempted is unknown.

Table No. 3 shows the number of persons working under Act VIII. During the year 1901, there were 104,660 workers (69,025 men, 30,488 women, and 5,147 children), an increase of 6,467 persons due chiefly to expansion in the coal trade. 70,129 persons (49,110 men, 19,297 women, and 1,722 children) were employed inside quarries and under ground, and 34,531 above ground, (19,915 men, 11,191 women, and 3,425 children).

So far as the employment of labour is concerned, coal is the most important mineral, and the number of persons employed in winning other minerals is comparatively small. 85,361 persons, or 82% of the total number employed, were engaged in coal mining; 57,414 were under ground (38,706 men, 17,300 women, and 1,408 children), and 27,947 above ground (16,976 men, 9,220 women, and 1,751 children). Mica mining engaged 9,219 persons.

Manganese comes next with a total of 4,230: of these persons, 2,932 (1,699 men, 1,011 women, and 222 children) were employed inside the quarries, and 1,298 (560 men, 458 women, and 280 children) were working outside the quarries; all the work is open-cast.

The salt mines employed 1,601 persons; 1,465 (839 men, 597 women, and 29 children) were under ground, and 136 men were engaged above ground.

In slate quarrying and mining, there were 778 workers; 369 (331 men, 20 women, and 18 children) were under ground in mines and inside quarries, and 409 (305 men and 104 women) were above ground.

Gold mining occupied only 420 persons; the number is exclusive of persons engaged in alluvial mining, which is not for the most part under the Act. For a short season of the year, the alluvial workers must number several thousands; it is impossible at present to obtain figures of the labour.

Tin mining employs 492 persons. One excavation for limestone in which 335 persons are employed, has been declared to be under Act VIII.

The number of workers engaged in mining and quarrying for corundum, diamonds, graphite, magnesite, and steatite, is small.

TABLE No. 3.

Average daily number of persons working at Mines and Quarries, under the Indian Mines Act during the year 1901.

(Classified according to employment under and above ground.)

Description of mineral.	Number of mines and quarries.	UNDER GROUND.				ABOVE GROUND.				Total under and above ground.	Per cent of total number.	Number employed in the preceding year.
		Men.	Women.	Children (under 12.)	Total.	Men.	Women.	Children (under 12.)	Total.			
Coal	315	38,706	17,300	1,403	57,414	18,976	9,220	1,751	27,947	85,361	81·56	78,961
Corundum	4	57	54	...	111	4	64	53	121	232	·22	200
Gems { Diamonds	2	45	35	...	80	25	5	..	30	110	·11	110†
{ Rubies	6	1,164	...	...	1,164	623	...	...	623	1,787	1·71	1,727
{ Sapphires												
{ Spinel												
Gold	5	164	...	...	164	224	32	...	256	420	·40	120
Graphite	1	50	...	...	50	30	...	...	30	80	·08	189
Limestone	1	84	91	22	197	89	47	5	141	338*	·32	338†
Magnesite	1	3	3	...	6	3	3	...	6	12	·01	80
Manganese ore	12	1,699	1,011	222	2,932	500	458	280	1,298	4,230	4·04	4,242
Mica	120	5,548	186	23	5,797	885	1,509	1,328	3,422	9,219	8·81	9,517
Salt	15	839	597	29	1,465	136	...	...	136	1,601	1·53	1,447
Slate	6	331	20	18	369	305	104	...	409	778	·74	770
Steatite (soapstone)	5	No returns										
Tin ore	39	380	...	...	380	55	49	8	112	492	·47	492†
TOTAL	542	49,110	19,297	1,722	70,129	19,915	11,191	3,425	34,531	104,660	100·00	98,193

* Returns incomplete.

† Figures for 1901.

In the following remarks and tables, the details of the labour employed during 1901, are given for—

(A) Workings in British India under the Indian Mines Act.

(B) Workings in Native States and shallow quarries in British India.

A.—WORKINGS IN BRITISH INDIA UNDER THE INDIAN MINES ACT.

COAL.

Table No. 4 shows the labour employed in each coal-field and province during 1901.

The total number employed under the Mines Act was 85,361 persons (55,632 men, 26,520 women, and 3,159 children), or an increase of 6,400 compared with the previous year.

Bengal heads the list so far as provinces are concerned, and employs 93 per cent of the total under Act VIII, and 83 per cent of the total number engaged in coal mining in India.

Of the coal-fields, Raneegeunge comes first with 41,196 workers (26,786 men, 12,917 women, and 1,493 children), or an increase of 3,943 compared with the preceding year. There were 27,613 under ground (18,949 men, 7,934 women, and 730 children), and 13,583 above ground (7,837 men, 4,983 women, and 763 children). Jherria occupied 27,346 workers, an increase of 3,306 compared with 1900. Giridih has slightly decreased in number of workers.

Assam employed 1,210, Punjab 1,536, Baluchistan 540, and Burma 203 persons.

TABLE No. 4.

Persons employed in Coal Mines and Quarries under the Indian Mines Act during the year 1901.

PROVINCE.	COAL-FIELD.	No of Mines.	UNDER GROUND.				ABOVE GROUND.				Total under and above ground.	Comparison with the previous year.
			Men.	Women.	Children (under 12).	Total.	Men.	Women.	Children (under 12).	Total.		
ASSAM .	Makum .	5	496	327	...	823	244	143	...	387	1,210	-140
BALUCHISTAN.	Khost .	1	272	...	...	272	176	...	13	189	461	-32
	Sor Range .	6	64	...	...	64	15	...	...	15	79	...
	Total .	7	336	...	...	336	191	...	13	204	540	-32
BENGAL.	Daling .	...	...	...	...	Nil	...	...	...	Nil	Nil	-22
	Daltongunge (Palaman) .	1	94	83	...	177	144	67	11	222	399	+209
	Jherria .	123	11,310	6,545	541	18,396	5,233	2,943	774	8,950	27,346	+3,306
	Giridih .	8	5,085	2,155	113	7,353	2,234	969	155	3,858	10,711	-614
	Raneegunge	160	18,949	7,934	730	27,613	7,837	4,983	763	13,583	41,196	+3,943
	Total .	292	35,438	16,717	1,384	53,539	15,448	8,962	1,703	26,113	79,652	+6,822
BURMA .	Thingadaw .	1	113	32	...	145	33	24	1	58	203	-76
CENTRAL PROVINCES.	Mohpani .	5	473	224	...	697	220	38	...	258	955	+119
	Warora .	3	798	...	...	798	414	53	...	467	1,265	-3
	Total .	8	1,271	224	...	1,495	634	91	...	725	2,220	+116
PUNJAB .	Dandot .	2	1,052	...	24	1,076	426	...	34	460	1,536	-200
Gross totals for 1901		315	38,706	17,300	1,408	57,414	16,976	9,220	1,751	27,947	85,361	+6,400

CORUNDUM.

Corundum is worked in the Namakkal taluk of the Madras Presidency. At Ramadavam, 217 persons (54 men, 110 women, and 53 children) were employed; 105 (54 men and 51 women) were under ground, and 112 persons (59 women and 53 children) at surface work. In the Kumaipalaiyam village, 6 persons were employed under ground, and 9 were above ground.

GEMS.

One hundred and ten persons were employed in prospecting for diamonds in Madras. The Ruby Mines at Mogok employed 1,237 Chinese and Shan males. The number of natives working in other mines is not stated, but is probably about 550.

GOLD.

The total number employed in British India was 420, of which 164 men were under ground, and 224 men and 32 women above ground.

In Burma, 135 persons were employed—40 men under ground and 95 above ground.

At Pahardi Mine (Chota Nagpur, Bengal), 77 persons were engaged: 20 men under ground, and 25 men and 32 women above ground.

In Madras Presidency—

(1) One hundred men were engaged in prospecting in the Coimbatore district,—50 under ground and 50 on the surface.

(2) One hundred and eight men were mining in 3 leases in the Wynaul—54 were under ground and 54 above ground.

GRAPHITE.

In Madras, there were 50 men employed under ground and 30 on the surface.

LIMESTONE.

One mine in Central Provinces has been declared to be under the Mines Act, and during 1901, employed 338 persons—197 (84 men, 91 women, and 22 children) worked under ground, and 141 (89 men, 47 women, and 5 children) on the surface.

MAGNESITE.

Twelve persons were employed at Manguppai and four other villages in the Salem taluk of Madras,—a decrease of 68 compared with 1900.

MANGANESE.

Table No. 5 shows the number of workers in quarries for manganese in the Vizagapatam District of the Madras Province to be 2,770—a decrease of 1,472 compared with 1900.

TABLE No. 5.

Province.	Village.	INSIDE THE QUARRIES.				OUTSIDE THE QUARRIES.				Total Inside and out- side the quarries.
		Men.	Women.	Children (under 12).	Total.	Men.	Women.	Children (under 12).	Total.	
Madras	Garbham	432	324	73	829	218	161	92	471	1,300
Do.	Koduru	584	306	58	948	67	59	63	189	1,137
Do.	Perepi	25	24	10	59	50	46	20	116	175
Do.	Paruja	28	17	7	52	47	39	12	98	150
Do.	Perumalli	...	...	...	...	5	3	...	8	8
	TOTAL	1,069	671	148	1,888	387	308	187	882	2,770

In the Central Provinces, 1,460 persons were employed: 1,044 were under-ground and 416 on the surface.

MICA.

Table No. 6 shows the number of persons engaged in mica-mining in the three districts—Nellore, North Arcot, and Nilgiris, of the Madras Presidency: 2,965 persons in all were employed.

In Bengal, 6,254 persons were employed.

TABLE No. 6.

PROVINCE.	District.	No. of mines.	UNDER GROUND.				ABOVE GROUND.				Total under and above ground.
			Men.	Women.	Children (under 12).	Total.	Men.	Women.	Children (under 12).	Total.	
Madras	Nellore . .	66	1,743	59	7	1,809*	262	377	418	1,057*	2,866
	North Arcot . .	1	22	...	...	23*	25	5	...	30*	52
	Nilgiris . .	2	18	...	...	18	25	4	...	29	47
Bengal	Hazaribagh . .	61	3,805	127	16	3,948	573	823	910	2,306	6,254
	TOTAL . .	130	5,588	186	23	5,797	885	1,209	1,328	3,422	9,219

* Figures estimated on 1900 basis.

SALT.

Table No. 7 gives the labour at the Government Mines in the Punjab. There was an increase of 106 persons employed in 1901, compared with the preceding year.

TABLE No. 7.

PROVINCE.	District.	Name of mine.	No. of mines.	UNDER GROUND.				ABOVE GROUND.				Total under and above ground.
				Men.	Women.	Children	Total.	Men.	Women.	Children	Total.	
Punjab	Jhelum .	Mayo .	1	736	545	20	1,301	136	...	...	136	1,437
	Do. .	Nurpur .	1	1	2	...	3	...	...	...	...	3
	Shahpur .	Warcha .	1	54	50	9	113	...	...	...	...	113
		Kalabagh .	12	48	...	...	48	...	...	...	...	48
		TOTAL .	15	839	597	29	1,465	136	...	...	136	1,601

SLATE.

Table No. 8 gives in detail for 1901 the labour employed at the mines and quarries in Monghyr, Kangra Valley, and Rewari. The figures for 1900 are approximately the same as for 1901.

TABLE No 8.

PROVINCE.	District.	Number of mines and quarries.	INSIDE THE QUARRIES AND UNDER GROUND.				ABOVE GROUND.				Total under and above ground.
			Men.	Women.	Children (under 12).	Total.	Men.	Women.	Children (under 12).	Total.	
BENGAL	Monghyr . .	3	138	...	...	138	213	89	...	302	440
PUNJAB	Kangra . .	1	180	20	...	200	35	15	...	50	250
	Rewari (Gurgaon)	2	13	...	18	31	57	...	...	57	88
	TOTAL . .	6	331	20	18	369	305	104	...	409	778

STEATITE..

Steatite is worked in Burma under the Act, but figures of labour are not available.

TIN-ORE..

Three hundred and twenty-six persons are engaged at Mergui, and 166 at Maliwun in Lower Burma. The numbers comprise 435 men, 49 women and 8 children, or a total of 492.

B.—WORKINGS IN NATIVE STATES AND SHALLOW QUARRIES IN BRITISH INDIA.

CLAY.

One hundred and eight persons were employed at Raneegunge (Bengal): 68 were under ground and 40 on surface; the returns are incomplete.

COAL.

Five collieries were worked in Native States, two in Hyderabad (Deccan), two in Rewah (Central India), and one pit in Bikaner. Table No. 9 gives details of the labour for 1901, and a comparison with the preceding year. Of the 9,948 workers (or 10.43 per cent of the number employed in coal mining in India), 8,254 persons (6,253 men, 1,270 women and 731 children), were under ground, and 1,694 on the surface.

TABLE No. 9.

NAME OF			Number of mines.	UNDER GROUND.				ABOVE GROUND.				Total under and above ground.	Comparison with the preceding year.
PROVINCE.	Native State.	Colliery.		Men.	Women.	Children.	Total.	Men.	Women.	Children.	Total.		
CENTRAL INDIA	Rewah .	Johilla .	1	8	6	...	14	40	...	...	40	54	+54
		Umaria .	1	1,486	387	...	1,873	248	5	...	253	2,126	—88
HYDERABAD (DECCAN).	Hyderabad	Singareni .	2	4,694	870	729	6,293	1,058	132	133	1,323	7,616	—429
RAJPUTANA	Bikaner	Palana .	1	65	7	2	74	50	28	...	78	152	+5
TOTAL .			5	6,253	1,270	731	8,254	1,396	165	133	1,694	9,948	—458

GEMS.

Amber and jade are worked in unadministered territory in Upper Burma. Figures of labour are not available.

GOLD.

In Mysore, there were 25,060 workers—an increase of 473 compared with the previous year. They comprised 14,221 men under ground, and 8,920 men, 1,722 women and 197 children above ground. In Hyderabad, 26 persons were employed, 7 men under ground, and 17 men and 2 women on the surface.

GRAPHITE.

Graphite mining is actively carried on in Southern India in the Neduvangand Taluk of the Native State of Travancore. At Vellanad, 649 persons are employed. One hundred and eighteen (115 men and 3 boys) work under ground, and 531 (262 men, 93 women, 50 boys, and 126 girls) on the surface. At Cullano, there are 212 workers; 176 (172 men and 4 boys) are employed under ground, and 36 (26 men and 10 boys) on the surface. At Plachinelly, there are 7 men, and 1 boy at work under ground, and 12 men and 8 boys above ground.

IRON-ORE.

About 800 men, 500 women and 210 children are employed in the Raneegunge coal-field, and about 200 commenced work during 1901 at Pumbi (Bengal). The excavations are in British India but are all shallow.

SALT.

Salt is mined in Kohat (Punjab), and Mandi State, but figures of labour are not available.

Section II.—Output of Minerals.

The output of minerals for 1900 and 1901 is summarised in Table No. 10. Gold heads the list, and in 1900, reached a value of 283 lakhs of rupees. Coal came second with an output valued at 201 lakhs. Salt at nearly 46, clay at 41, petroleum at 22, saltpetre at 16, and manganese at 17 lakhs, are the other more important minerals won.

Comparing the output for 1901 and the preceding year, the chief improvement is in coal which has increased in outturn from 6,118,692 tons to 6,849,249 tons—an increase in value of roughly 15 lakhs of rupees. Gold has advanced by 6,672 ozs., or roughly 3 lakhs of rupees.

TABLE No. 10.
Total output of minerals in India during the years 1901 and 1900.

Description of mineral.	1901.		1900.	
	Quantity.	Value at mines and quarries.	Quantity.	Value at mines and quarries.
		Rs.		Rs.
Asbestos . . . . .	.....	.....	1 cwt. .	8
Clay	330 tons*	.....	4,130,425 tons . *	41,54,863
Coal	6,849,249 „ .	.....	6,118,692 „ .	2,01,46,222
Copper-ore	25 „ *	.....	76 tons . *	244
Corundum	22½ „ *	.....	1,455 „ .	.....
Gems—				
Amber	4½ „ .	175	9 cwt. *	1,540
Diamonds . . . . .	.....	.....	169 carats.	11,372
Garnets . . . . .	.....	.....	1,251 cwt. . *	50,000
Jade	1,152 cwt. .	32,116	1,788 cwt. . *	1,63,396
Rubies	210,784 carats* .	15,37,668	214,856 carats	} * 14,59,898
Sapphires	9,786 „ .	15,072	7,239 „	
Spinel	10,241 „ .	14,408	8,917 „	
Tourmaline . . . . .	.....	.....	0·65 cwt. .	18,600
Gold	519,657 oz.†*	.....	512,985 oz. .	2,83,76,293
Graphite	2,727 tons .	.....	1,829 tons.	Not stated.
Gravel and sand . . . . .	.....	.....	167,389 „ . *	95,818
Gypsum . . . . .	.....	.....	4,345 „ .	1,698
Igneous rocks . . . . .	.....	.....	1,107,281 „ . *	4,32,032
Iron-ore	57,800 tons* .	.....	63,073 „ .	1,67,567
Laterite . . . . .	.....	.....	556,304 „ . *	5,89,035
Limestone	8,370 tons* .	.....	1,182,892 „ . *	7,60,408
Magnesite	½ ton .	.....	225 „ .	.....
Manganese ore	162,057 tons .	.....	130,670**„ .	17,00,139
Marble . . . . .	.....	.....	... †	.....
Mica	995½	.....	918½ „ .	892,320 .
Petroleum . . . . .	.....	.....	37,729,211 gallons	22,31,325
Salt	90,242 tons§ .	.....	1,005,293 tons.	45,85,454
Saltpetre . . . . .	.....	.....	230,472 „ .	16,29,657
Sandstone . . . . .	.....	.....	394,217 „ . *	4,30,974
Slate	4,202 .	.....	7,259 „ .	27,974
Steatite (Soapstone) . . . . .	.....	.....	2,495 „ .	30,340
Tin-ore	69¾ tons .	.....	104 „ .	128,009

* Incomplete.

† From monthly returns.

‡ Included in limestone.

§ Mines only.

** Exports from Bombay and Madras, 1900-1901.

Table 11 gives the output of minerals from mines and quarries under the Indian Mines Act during the year 1901 arranged according to the mineral raised and the province in which the mine is situated: the figures for 1900 are also shown.

The workings exempted by the Government of India from the operation of the Act have been stated on Table 2, page 4, of this report: they comprise quarries of kankar, stone, and laterite, etc., in Bombay, Lower Bengal, Central Provinces, Madras, Ajmeer-Merwara, and North-Western Provinces and the salt quarries in the Kohat district of the Punjab. 91% of the coal worked in India comes under the Act, and the output for 1901 shows an increase of 774,773 tons compared with the preceding year.

The chief gem, mica, manganese, and slate mines and quarries, one gold mine, a group of graphite and some limestone quarries, are also affected by the Act.

The output of gold has increased from 1,236 ozs. for 1900 to 1,984 ozs. during 1901.

TABLE No. 11.

Output of minerals from Mines and Quarries under the Indian Mines Act during the year 1901.

KIND OF MINERAL.	Province.	1901.			TOTAL IN PRECEDING YEAR.	
		No. of Mines and Quarries.	Quantity.	Value at mines and quarries	Quantity.	Value at mines and quarries.
CLAY . . .	Central Provinces .	1	Tons. 330	Rs. ...	Tons. ...	Rs. ...
COAL	Assam . . .	5	253,163	...	216,736	10,25,819
	Baluchistan . .	7	21,685	...	23,281	4,65,620
	Bengal . . .	292	5,703,876	...	4,978,492	1,44,01,348
	Burma . . .	1	12,466	...	10,223	76,710
	Central Provinces .	8	191,516	...	172,842	7,79,056
	Punjab . . .	2	67,730	...	74,083	7,14,417
TOTAL .	.....	315	6,250,435	...	5,475,662	1,74,62,970
CORUNDUM . . .	Madras . . .	4	22 $\frac{3}{4}$	...	69 $\frac{1}{2}$	...
GEMS—						
DIAMONDS . . .	Madras . . .	2	Nil	...	Nil	...
RUBIES . . .	Upper Burma . .	6	210,784 carats*	15,37,668	214,856 carats*	14,59,898
SAPPHIRES . . .	Do. . . .	...	9,786 "	15,072	7,239 "	
SPINELS . . .	Do. . . .	...	10,241 "	14,408	8,917 "	
TOTAL .	.....	8	230,811 "	15,67,148	231,012	14,59,898
GOLD	Upper Burma . .	1	1,984 ozs.	1,14,100	1,236 ozs.	...
GRAPHITE . . .	Madras . . .	1	295 tons.	...	400 tons	...
LIMESTONE . . .	Central Provinces .	1	8,370 tons	...	...	...
MAGNESITE . . .	Madras . . .	1	$\frac{1}{2}$ ton	...	22.5	...
MANGANESE ORE . .	Central Provinces .	3	85,594 tons	...	...	...
	Madras . . .	9	76,463 "	...	...	...
TOTAL .	.....	12	162,057	...	130,670**	17,00,139

* Incomplete.

** Exports from Madras and Bombay, 1900-1.

TABLE No. 11—*contd.*

KIND OF MINERAL.	Province.	1901.			TOTAL IN PRECEDING YEAR.	
		No. of Mines and Quarries.	Quantity.	Value at mines and quarries.	Quantity.	Value at mines and quarries.
MICA . . .	Bengal . . .	61	Tons. 768	Rs. ...	Tons. 429	Rs. 4,17,000
	Madras . . .	69	227 $\frac{3}{4}$	...	487	...
	TOTAL . . .	130	995 $\frac{3}{4}$	...	916	...
SALT . . .	Punjab . . .	15	90,242	...	79,996	...
SLATE . . .	Bengal . . .	3	1,237	...	...	...
	Punjab . . .	3	2,965	...	...	...
	TOTAL . . .	6	4,202	...	...	...
TIN . . .	Lower Burma . .	39	69 $\frac{3}{4}$	...	104	1,28,000

Particulars concerning each kind of mineral, (A) Coal, (B) Minerals other than Coal.

(A) Coal.

The following remarks refer not only to British India, but also to the Native States of Hyderabad (Singareni colliery), Rewah (Umaria colliery), and Bikaner (Palana colliery).

Indian coal belongs to several periods and may be grouped under two headings:—

- (1) Gondwana (Upper Palæozoic).
- (2) Cretaceous and Tertiary.

The younger coal is bright-black, bituminous, and non-laminated, but frequently friable; it occurs in isolated places, chiefly in extra-Peninsular India, and is available for local purposes, but the fields are at a considerable distance from the main markets, and the fuel does not compete with Gondwana coal. The latter has a somewhat large percentage of ash and is not equal to Welsh coal, but its value, for steaming and other purposes, is fairly high, and it occurs in enormous quantities in the north-eastern area of Peninsular India (Bengal, Central Provinces, Central India and the Native State of Hyderabad) in a number of separate coal-fields; some of the collieries are within 150 miles of Calcutta.

Coal mining in Bengal commenced about 1812, but made little progress until the East Indian Railway reached the field in 1854; 293,443 tons were produced in 1857. The Mohpani and Warora mines (Central Provinces) were opened out about 1867, and more or less systematically worked from 1870 and 1874, respectively.

The output from Bengal and the Central Provinces in 1880 was a million tons, and since 1887, the mines in Bengal, and Hyderabad (Deccan), have been wonderfully developed.

When the proper method of using Gondwana coal had been learnt, one after another of the local markets was captured, and although the local coal demands and export trade of India markedly increased since 1880, the imports of English and other coals have seriously decreased.

In India, there is very little consumption for domestic purposes, and the coal is used almost entirely for shipping, railways, and factories.

The total consumption of coal in India for the years 1880, 1890, 1900, and 1901, is given on Table No. 12, which shows the decrease in imports and the increase in Indian output and exports to foreign ports.

In 21 years, the consumption has been nearly quadrupled, the output has a five-fold and the exports nearly a ten thousand-fold advance, but the imports have been halved.

TABLE No. 12.

Consumption of Coal, Coke, and Patent Fuel in India during the years 1880, 1890, 1900 and 1901.

	1880	1890	1900	1901
Imports into India (coal, coke, patent fuel and Government stores).*	729,058	817,004	142,467	285,786
Indian output	1,019,793	2,168,521	6,118,692	6,849,249
Total	1,748,851	2,985,525	6,261,159	7,135,035
Exports to foreign ports*	53	26,649	542,953	524,687†
Consumption in India	1,748,798	2,958,876	5,718,206	6,610,348

* Figures for official year, April 1st to March 31st.

† Exclusive of Government Stores.

The imports, exports, and output of coal will now be considered separately.

(A) IMPORTS OF COAL, COKE AND PATENT FUEL.

Table No. 13 shows the provinces which have received foreign coal, and Table No. 14 gives the foreign countries whence it has been despatched during 1880-1, 1890-1, 1900-1 and 1901-2. Government stores are separately stated.

The provinces and ports to which English coal has been imported are chiefly Bengal (Calcutta), Burma (chiefly Rangoon), Bombay (Bombay), Madras (Madras and other ports) and Sind (Karachi). About the year 1885, Indian began to replace and quickly supplanted English coal in Calcutta; small quantities—2,685 tons in 1901-2—are still imported, but there is little reason to anticipate a revival of the struggle in Calcutta, because Indian coal controls the market and can now be bought for R7/ per ton, while English fuel would cost R17; the raising cost in Bengal is in many cases less than R2, and the railway freight from the coal-fields to the port is only R2-8 to R4-8 per ton (less an abatement for large quantities.)

Rangoon followed suit about 1888: during 1880-1, Burma received 86,782 tons, and in 1901-2, 27,455 tons of coal, coke, and patent fuel, or an increase of 2,864 tons compared with the preceding year. In 1890-1, Madras took 50,818 tons and in 1901-2, 3,400 tons of coal, coke, and patent fuel, or a decrease of 2,023 tons compared with 1900-1. Bombay and Sind held out till 1897, when the imports were halved. During 1890-1, 632,926 tons were received in Bombay, in 1899-1900, 317,939 tons and in 1901-2, 185,118 tons of coal, coke, and patent fuel, or an increase of 107,694 tons compared with the preceding year. Of this increase, February and March 1902 are responsible for 38,673 tons, and the calendar year 1901 shows an advance of 55,978 tons compared with 1900. Sind took 54,274 tons in 1890-1, and 11,359 tons of coal, coke and patent fuel in 1901-2, or a decrease of 5,314 tons compared with 1900.

The coke and patent fuel imported into India amounted to 17,032 in 1890-1, 18,778 in 1900-1, and 9,969 in 1901-2.

Government stores consist of coal, coke, and patent fuel and vary from year to year. In 1890-1, 31,517 tons of coal and 823 ton of coke, in 1900-1, 15,149 tons, and in 1901-2, 55,769 tons of coal, coke, and patent fuel, were imported. Small quantities are sent to Madras and Burma, but most of the consignments go to Bombay.

The United Kingdom has supplied a large percentage of the imports, and, during 1901-2, sent 155,558 tons of coal, coke and patent fuel, or 67% of the total amount, and an increase of 72,322 tons compared with 1900-1. Japan gave 27,967 or 22%, and Australia yielded 14,638 or 11%, of the total imports during 1900-1.

TABLE No. 13.

Provinces which received imports of Foreign Coal, Coke and Patent Fuel during the years 1880-1, 1890-1, 1900-1 and 1901-2.

PROVINCE.	1880-1.				1890-1.				1900-1.				1901-2. Coal coke, and patent fuel.
	Coal.	Coke.	Pat- ent Fuel.	Total.	Coal.	Coke.	Pat- ent Fuel.	Total.	Coal.	Coke.	Pat- ent Fuel.	Total.	
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	
Bengal . . .	64,998	1,756	...	66,754	7,571	2,476	...	10,047	2,540	667	...	3,207	2,685
Bombay . . .	482,406	4,078	...	486,484	628,678	4,248	...	632,926	72,018	5,406	...	77,424	185,118
Burma . . .	86,562	220	...	86,782	35,999	405	195	36,599	23,843	741	7	24,591	27,455
Madras . . .	10,629	167	4,852	15,588	46,392	1,106	3,320	50,818	205	3,718	1,500	5,423	3,400
Sind . . .	25,705	344	2,111	28,160	48,992	1,104	4,178	54,274	9,934	2,639	4,050	16,673	11,359
TOTAL . . .	670,300	6,505	6,963	683,768	767,632	9,339	7,693	784,664	108,540	13,221	5,557	127,318	230,017
Govt. Stores (sent chiefly to Bombay).	41,720	582	2,988	45,290	31,517	823	...	32,340	...	...	...	15,149	55,769
Grand Total	712,020	7,087	9,951	729,058	799,149	10,162	7,693	817,004	...	...	...	142,467	285,786

TABLE No. 14.

Quantities of Coal, Coke, and Patent Fuel shipped from Foreign Countries to India during the years 1880-1, 1890-1, 1900-1 and 1901-2.

COUNTRIES.	1880-1.				1890-1.				1900-1.				1901-2.			
	Coal.	Coke.	Pat- ent Fuel.	Total.	Coal.	Coke.	Pat- ent Fuel.	Total.	Coal.	Coke.	Pat- ent Fuel.	Total.	Coal.	Coke.	Pat- ent Fuel.	Total.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Aden . . .	...	...	...	...	176	...	...	176	435	...	...	435	...	...	...	...
Arabia . . .	...	...	...	...	...	...	...	...	70	...	...	70	...	...	...	...
Australia . . .	2,948	...	...	2,948	10,017	...	...	10,017	14,638	...	...	14,638	...	...	...	...
Austria . . .	218	...	...	218	...	...	...	...	...	...	...	...	...	...	...	...
Cape Colony . . .	220	...	...	220	60	...	...	60	...	...	...	...	...	...	...	...
Ceylon . . .	107	...	...	107	651	2	...	653	150	...	...	150	...	...	...	...
China (Honkong). . .	100	...	...	100	2	...	...	2	2	...	...	2	...	...	...	...
Egypt . . .	387	...	...	387	...	151	...	151	...	...	...	...	...	...	...	...
France . . .	875	...	...	875	...	...	...	...	...	...	...	...	...	...	...	...
Germany . . .	2,358	...	...	2,358	8	...	...	8	...	111	...	111	...	...	...	...
Italy . . .	6,789	...	...	6,789	...	...	...	...	...	...	...	...	...	...	...	...
Japan . . .	...	...	...	...	12,014	...	...	12,014	27,967	...	...	27,967	...	...	...	...
Madagascar . . .	...	...	...	...	...	...	...	...	...	...	7	7	...	...	...	...
S. America . . .	...	...	...	...	10	...	...	10	...	...	...	...	...	...	...	...
Straits Settlements . . .	157	...	...	157	22	...	...	22	702	...	...	702	...	...	...	...
United Kingdom . . .	656,063	6,595	6,963	669,536	743,427	9,186	7,693	760,306	64,576	13,110	5,550	83,236	145,696	9,052	810	155,558
Other Countries . . .	73	...	...	73	1,245	...	...	1,245	...	...	...	...	74,352	107	...	74,459
TOTAL . . .	670,300	6,505	6,963	683,768	767,632	9,339	7,693	784,664	108,540	13,221	5,557	127,318	220,048	159	810	230,017
Govt. Stores . . .	41,720	582	2,988	45,290	31,517	823	...	32,340	...	...	...	15,149	...	...	...	55,769
Total	712,020	7,087	9,951	729,058	799,149	10,162	7,693	817,004	...	...	...	142,467	...	...	...	285,786

(B)—EXPORTS OF COAL AND COKE.

Table 15 shows the provinces from which exports of Indian coal and coke were despatched during 1880-1, 1890-1, 1900-1 and 1901-2. Table 16 gives the foreign countries to which those exports were sent.

In 1880-1, 9 tons were exported, in 1890-1, 26,336 tons, in 1900-1, 541,445 tons, and in 1901-2, 524,687 tons were despatched. The figures include coal and coke, but the latter is small in amount.

Patent fuel is manufactured in India, but is used locally.

Exports are despatched from Calcutta (Bengal), Bombay, and Burma, but Calcutta is responsible for 99% of the total amount exported.

In 1901-2, Ceylon received 336,372 tons (or 64% of the total, and a decrease of 32,814 tons compared with 1900-1), and the Straits took 89,592 tons (or 17% of the total, and an increase of 23,877 tons compared with the preceding year). Aden received 47,194 tons, or 6,111 tons less than in 1900-1.

TABLE No. 15.

*Provinces from which Indian Coal and Coke were exported during the years 1880-1, 1890-1, 1900-1 and 1901-2.**

PROVINCES WHENCE EXPORTED.	1880-1.			1890-1.			1900-1.			1901-2.
	Coal.	Coke.	Total.	Coal.	Coke.	Total.	Coal.	Coke.	Total.	Coal and Coke.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Bengal	...	8	8	26,207	33	26,240	539,363	1,155	540,518	
Bombay	1	...	1	...	...	...	597	...	597	
Burma	...	...	...	96	...	96	330	...	330	
TOTAL .	1	8	9	26,303	33	26,336	540,290	1,155	541,445	524,637
Government stores .	Nil	Nil	Nil	Nil	Nil	Nil	...	...	1,500	
Grand Total .	1	8	9	26,303	33	26,336	...	...	542,945	524,637

* Excluding foreign coal.

TABLE No. 16.

Countries or Ports to which Indian Coal and Coke were exported during the years 1880-1, 1890-1, 1900-1, and 1901-2.

COUNTRIES OR PORTS TO WHICH EXPORTED.	1880-1.			1890-1.			1900-1.			1901-2.
	Coal.	Coke.	Total.	Coal.	Coke.	Total.	Coal.	Coke.	Total.	Coal and Coke.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Aden	...	...	...	...	...	...	53,305	...	53,305	47,194
Africa, East (British) .	1	...	1	...	...	...	712	...	712	...
„ „ (other ports)	...	...	...	...	...	...	19,857	...	19,857	...
Arabia	...	...	...	...	...	...	...	...	...	...
Australia	...	...	...	600	...	600	2,000	...	2,000	...
Ceylon	...	...	...	15,157	1	15,158	368,031	1,155	369,186	336,372
China (Hong Kong) .	...	...	...	...	...	...	400	...	400	...
Egypt	...	...	...	...	...	...	3,405	...	3,405	...
Germany	...	...	...	100	...	100	...	...	...	...
Java	...	...	...	4,000	...	4,000	7,043	...	7,043	...
Mauritius	...	...	...	500	...	500	5,759	...	5,759	...
Natal	...	...	...	...	...	...	598	...	598	...
Persia	...	...	...	...	...	...	...	...	...	...
Straits Settlements .	...	8	8	5,869	31	5,900	65,715	...	65,715	89,592
Sumatra	...	...	...	...	...	...	10,863	...	10,863	...
United Kingdom . .	...	...	...	2	1	3	2,602	...	2,602	...
West Indies	...	...	...	75	...	75	...	...	...	...
Other Countries . .	...	...	...	...	...	...	...	...	...	51,529
TOTAL .	1	8	9	26,303	33	26,336	540,290	1,155	541,445	524,637
Government Stores .	Nil	Nil	Nil	Nil	Nil	Nil	...	...	1,500	
Grand Total .	1	8	9	26,303	33	26,336	...	...	542,945	524,637

The exports of foreign coal are as follows:—44 tons of coal despatched from Bombay and Burma during 1880-1, 311 tons of coal and 2 tons of coke from Madras and Bombay during 1890-1, and 8 tons of coal, coke and patent fuel from Bombay during 1900-1.

Calcutta is responsible for 99% of the total exports of Indian coal to foreign ports: statistics for the calendar years 1897 to 1902 are shown on Table 17.

In 1899, the total exports to foreign ports were 269,112 tons, and in 1900, they amounted to 488,555 tons: the large increase was due chiefly to the amounts taken in Ceylon and Aden. In 1899, Ceylon took 163,907 tons and Aden received 4,000 tons. In 1900, Ceylon took 335,465 tons and Aden 39,538.

During 1901, 587,113 tons were exported from Calcutta, and of this amount, Ceylon (Colombo) received 363,718 tons or 62%. Singapore took 78,704 tons or 13%, and Aden 48,194 tons or 8% of the total amount.

The Ceylon returns for 1901 show that, out of a total of 627,728 tons imported, 286,842 tons (valued at R67,59,302) came from the United Kingdom, 329,064 tons (valued at R56,76,574) from British India, 5,522 tons (valued at R1,59,492) from Australia, and 6,300 tons (valued at R1,26,000) from Japan.

To the West, Suez has been claimed as a possible market for Bengal coal, but the only shipment was 3,130 tons in 1900. 25,751 tons of Jherria coal were sent to Uganda in 1901 and the fuel is said to have given satisfaction, but it was decided to revert to the use of wood during 1902.

On the East, Indian coal reaches as far as Singapore which received during 1901, 475,452 tons from Japan, 68,859 tons from Bengal, 61,912 from Cardiff, 38,155 from Australia, 8,004 from Tongking, and 6,840 tons from Labuan. •• Out of 2,812 tons of coke imported, 2,578 came from the United Kingdom.

TABLE No. 17.

*Exports of Bengal Coal from Calcutta to Foreign Ports for the years 1897 to 1901 inclusive.**

PLACES.	1897.	1898.	1899.	1900.	1901.
Acheen	1,300	...	...	...	...
Aden	13,935	14,416	4,000	39,538	48,194
Allepey	...	...	...	...	13
Batavia	...	...	...	3,352	3,691
Ceylon	105,213	213,852	163,907	335,465	363,718
Dejibonty	...	...	...	5,020	...
Diego Suarez	...	...	...	...	4,556
Fiji	...	...	...	...	2,000
Hamburg	...	...	...	...	6
Hong Kong	...	...	...	400	50
Kangassentorre	...	...	...	...	1,114
Killindine	...	...	...	...	27,298
Linga	597	...	...	...	...
Mangdow	...	...	...	...	400
Manilla	...	...	4,391	...	...
Marseilles	5	4	...	...	...
Mauritius	7,167	1,870	8,865	11,191	18,512
Mombassa	1,311	...	...	...	...
Muscat	...	250	...	...	...
Natal	...	287	5,893	179	758
Olehleh	...	...	3,531	10,863	...
Penang	238	4,006	696	11,425	9,381
Perim	10,934	...	...	...	12,767
Sabang Bay	...	...	...	...	10,690
Singapore	77,191	79,522	77,771	67,875	78,704
Suez	...	...	...	3,130	...
United Kingdom	...	155	58	2	2,600
Zanzibar	2,308	...	...	115	2,661
Total	220,199	314,362	269,112	488,555	587,113

* From tables published by the Indian Mining Association. Government stores are not included.

The exports from Calcutta to Indian ports are given in Table No. 18. The sudden rise in the case of Bombay from 399,121 tons in 1899 to 824,680 tons in 1900, corresponds with the decrease of imports from foreign countries into Bombay.

TABLE NO. 18.

*Exports of Bengal Coal from Calcutta to Indian ports for the years 1897 to 1901 inclusive.**

Places.	1897.	1898.	1899.	1900.	1901.
Akyab	1,393	1,614	2,167	5,575	6,160
Balasore	2,439	2,631	219	4	.....
Bassein	4,500	.....	4,622	3,900	7,221
Bhaunagar	256	.. ..	.....	.....	.....
Binlipatam	510	270	703	240	368
Bombay	489,042	449,302	399,121	824,080	861,859
Chandbali	1,395	6,985	1,875	625	465
Chittagong	1,296	785	2,671	3,791	3,637
Cochin . . . . .	.....	200	.....	.....	.....
Cocanada	5,985	100	.....	.....	4,226
Cuddalore	31,509	22,635	28,706	12,088	31,591
Cuttack . . . . .	.....	200	.....	.....	.....
Gopalpur	3	.....	.....	.....	.....
Jamnagar	40	.....	.....	.....	.....
Karachi	14,774	20,801	.....	4,730	14,108
Kyaukpyu	338	473	514	605	497
Madras	141,253	193,102	193,667	136,189	173,171
Mangalore	350	.....	.....	.....	.....
Moulmein	781	1,359	1,120	2,270	1,338
Negapatam	19,614	24,226	18,930	28,199	31,009
Pondicherry	2,522	.....	6,120	3,994	10,088
Port Blair	750	750	1,000	1,000	750
Rangoon	162,393	169,979	188,619	209,469	242,777
Tuticorin	11,390	10,677	17,007	9,237	18,285
Vizagapatam	200	570	100	.....	350
TOTAL .	892,733	906,709	867,161	1,245,996	1,407,900
Bunker coal	.....	.....	.....	.....	743,567

* From tables published by the Indian Mining Association.

Although the record for 1901 is specially good, the position has altered during the first three months of 1902. The imports of English coal into Bombay have increased from 11,492 to 59,747 tons, and the imports of Indian coal have decreased from 185,369 to 137,857. The freights from England have been exceptionally low—8s. 10½d. per ton from Cardiff to Bombay. There are not strong reasons for expecting that freight-rates from England will remain low. An attempt is being made to carry coal over B. N. Ry. and G. I. P. Ry. at the coasting rate, viz., Rs 6-4-0 per ton.

The imports of English coal into Colombo decreased from 93,392 to 67,985, and Indian imports from 89,772 to 63,827. Colombo was overstocked.

TABLE No. 19.

Imports of Coal and Coke into Bombay and Colombo during January, February, and March 1901 and 1902.

Ports to which imported.	Country from which exported.	1901 January, February, March.			1902 January, February, March.		
		Coal.	Coke.	Total.	Coal.	Coke.	Total.
		Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
BOMBAY	United Kingdom	11,492	2,988	14,480	59,747	852	60,599
	Japan	10,641	Nil	10,641	563	Nil	563
	India (Calcutta chiefly) . .	185,369	Nil	185,369	137,857	Nil	137,857
	Other Countries	Nil	Nil	Nil	3,017	Nil	3,017
	Total	207,502	2,988	210,490	201,184	852	202,036
COLOMBO	United Kingdom	93,392	Nil	93,392	67,985	Nil	67,985
	Japan	6,300	Nil	6,300	Nil	Nil	Nil
	India (Calcutta chiefly) . .	89,772	466	90,238	63,827	111	63,938
	Australia	3,000	Nil	3,000	Nil	Nil	Nil
	Total	192,464	466	192,930	131,812	111	131,923

(C)—OUTPUT OF COAL.

The output for 1901 shows an increase of 730,557 tons or 11% in comparison with the preceding year. The expansion of the coal industry during 1901 is specially noteworthy in view of the marked advancement of the reported out-turns during previous years.

Year.	Output.
1880	1,019,793 tons.
1885	1,294,221 „
1890	2,168,521 „
1895	3,540,019 „
1900	6,118,692 „
1901	6,849,249 „

Of the 6,849,249 tons raised during 1901, 368,224 tons (an increase of 34,646 tons) came from Cretaceous and Tertiary beds, and 6,481,025 (an increase of 695,911 tons) from the Gondwana system.

The latter has two coal series :—

(1) The Raneegunge or Upper Coal Series, which yielded 2,196,750 tons in 1901.

(2) The Barakar or Lower Coal Series, which gave 4,284,275 tons in 1901.

The three largest concerns in India contribute $\frac{1}{3}$ of the total output as follows :—

Company.	1901.	1900.	Coal-fields.
	Tons.	Tons.	
Bengal Coal Co.	469,462*	457,700	Giridih, Raneegunge and Dalton-gunge.
E. I. Ry. collieries	561,170	528,372	Giridih.
Hyderabad (Deccan) Co. . .	421,218	469,291	Singareni.
Total	1,451,850	1,455,363	

* Exclusive of 109,969 tons of dust and rubble.

Details for each province and coal-field are given on Table No. 21. Bengal yielded 5,703,876, or 83% of the total output* for 1901 and an increase of 725,384 tons compared with 1900. Hyderabad comes second with 421,218 or 6%, and the Central Provinces gives 191,516, or 3% of the total amount raised in 1901. Of the coal-fields, Raneeunge heads the list with 2,932,095 tons or 43% of the total amount and 367,800 tons increase compared with 1900, and Jherria is next with 2,076,155 or 30% and 376,882 tons increase.

TABLE No. 20.

Output of Coal for each Province and Coalfield in India during the year 1901.

Age.	Province and Field.	Coal.	Coke.††	Patent fuel.	Coal equivalent of coke and patent fuel.†	Total output for 1901.	Percentage of the total output.	Comparison with previous year.
		Tons.	Tons.	Tons.	Tons.	Tons.		Tons.
CRETACEOUS AND TERTIARY.	Assam— Makum . . .	251,991	703	Nil	1,171	253,162	3.70	+36,426
	Baluchistan— Khost . . .	14,501	Nil	4,454	3,930	18,431	0.27	+369
	Sor Range** . .	4,341	Nil	Nil	Nil	4,341	0.06	—878
	TOTAL . . .	18,842	Nil	4,454	3,930	22,772	0.33	—509
	Burma— Thingadaw . . .	12,466	Nil	Nil	Nil	12,466	0.18	+2,238
	Punjab— Dandot . . .	62,618	Nil	5,760	5,082	67,730	0.99	—6,353
	Rajputana—* Bikaner . . .	12,094	Nil	Nil	Nil	12,094	0.18	+2,844
TOTAL FOR CRETACEOUS AND TERTIARY BEDS.		358,041	703	10,214	10,183	368,224	5.38	+31,646
PALEOZOIC (GONDWANA SYSTEM).	Bengal— Daling . . .	Nil	Nil	Nil	Nil	Nil	Nil	—1,490
	Daltongunge . .	3,881	Nil	Nil	Nil	3,881	0.06	+3,174
	Giridih . . .	649,010	24,921	1,524	42,735	691,745	10.10	—20,982
	Jherria . . .	1,918,585	94,542	Nil	157,570	2,076,155	30.31	+376,882
	Raneeunge . . .	2,870,237	37,115	Nil	61,858	2,932,095	42.81	+367,800
	TOTAL . . .	5,441,713	156,578	1,524	262,163	5,703,876	83.28	+725,384
	Central India—* Umaria . . .	164,362	Nil	Nil	Nil	164,362	2.40	—127
	Johilla . . .	53	Nil	Nil	Nil	53	...	+53
	TOTAL . . .	164,415	Nil	Nil	Nil	164,415	2.40	—74
	Central Provinces— Mohpani . . .	43,046	Nil	Nil	Nil	43,046	0.63	+3,434
	Warora . . .	148,470	Nil	Nil	Nil	148,470	2.16	+15,240
	TOTAL . . .	191,516	Nil	Nil	Nil	191,516	2.79	+18,674
	Hyderabad—* Singareni . . .	421,218	Nil	Nil	Nil	421,218	6.15	—48,073
TOTAL FOR GONDWANA SYSTEM		6,218,862	156,578	1,524	262,163	6,481,025	94.62	+695,911
GROSS TOTAL FOR INDIA		6,576,903	157,281	11,738	272,346	6,849,249	100%	+730,557

* Not affected by the Indian Mines Act. †† Hard and soft coke. ** Partly under the Act.

† On the assumption that 100 tons of coal are required for the manufacture of 60 tons of coke.

Particulars for each province will be given under the two headings : —

- (1) Collieries affected by the Mines Act.
- (2) Collieries in Native States.

(I)—COLLIERIES AFFECTED BY THE INDIAN MINES ACT.

The output for collieries under the Act during 1901 was 6,250,435 tons or 91 per cent of the total outturn for India.

Assam.—There are several distinct fields along the skirts of the Naga Hills, but only one seam at Lakhimpore (Makum) has been worked. The workable coal is 51 feet thick with 6 bands 3" to 3' 6" thick, and outcrops on the sides of hills into which it dips at an angle of 20° to 40°. The coal contains a small percentage of ash, but has from 1 to 4 per cent of sulphur and is brittle. Some samples will cake. During 1901, 251,991 tons of coal and 703 tons of coke were despatched; during 1900, the output amounted to 216,736 tons of coal.

Baluchistan.—A number of small collieries in the Sor Range are working a seam which is $3\frac{1}{2}$ feet thick and has a dip of 40° into the hills: the output for 1901 was 3,254 tons. The Khost colliery has several adits in the Thal Chotali District west of Quetta, in a seam having a thickness of 27 inches and a dip of 40°. The dust is made into briquettes, of which 4,454 tons were produced in 1901. The total output of coal was 18,431 tons or an increase of 369 tons compared with 1900. Both the coal and the briquettes are used by the North-Western Railway.

Bengal.—The Bengal fields yielded 5,703,876 tons (5,441,713 coal and 156,578 coke) of coal, or $\frac{9}{10}$ of the total output under Act VIII, and an increase of 725,384 tons compared with the preceding year. The details are as follows :—

Coalfield.	Coal.	Coke.	Patent fuel.	Coal equivalent of coke and patent fuel.	Total coal raised in 1901.	Comparison with preceding year
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Daling . . .	Nil	Nil	...	Nil	Nil	—1,490
Daltongunge . .	3,881	Nil	...	Nil	3,881	+3,174
Giridih . . .	649,010	24,921	1,524	42,735	691,745	—20,982
Jherria . . .	1,918,585	94,542	...	157,570	2,076,155	+376,882
Raueegunge . .	2,870,237	37,115	...	61,858	2,932,095	+367,800
TOTAL .	5,441,713	156,578	1,524	262,163	5,703,876	+725,384

Two concerns produced nearly one-fifth of the total amount won—

Bengal Coal Co.	469,462* tons.
East Indian Railway Collieries	561,170 „
	1,030,632 „

* Exclusive of 109,969 tons of dust and rubble.

The figures for European and Indian-owned collieries are as follows :—

European	4,252,093 tons.
Indian	1,451,783 „
TOTAL .	5,703,876 „

(a) *Daltongunge.*—As the Railway will be shortly completed from Barun, Daltongunge is likely to be developed in the near future; this field will be in a position to supply the up-country demand for coal. The coal-bearing (Barakar) rocks occupy an area of 30 square miles, and estimates of workable coal vary from 9 to 161 million tons. The output for 1901 was 3,881 tons, an increase of 3,174 tons on the output of 1900.

(b) *Giridih.*—Giridih (Karharbari), which is 200 miles by rail from Calcutta, was worked from 1857 to 1861, and re-opened and systematically worked from 1871. It has an area of 7 sq. miles with two valuable seams and several thick dirty seams (hill seams), all being in the Barakar or Lower Coal Series. The

lower seam varies from 30 to 12 feet in thickness, and contains the finest steam coal in the Gondwana System; the upper seam is 6 feet thick. One shaft is 640 feet (the deepest shaft in India), and nearly all the coal is wound by modern plants. A Jeffrey's coal-cutter (divisible into three parts) and nicker are being introduced at the East Indian Railway collieries: it is anticipated that the cost of driving will be about the same as by hand-labour, but the work will be done quicker and a greater number of places will be available for coal-cutters. The coal forms a good coke. A briquette plant is in working order at one mine. During 1901, the field yielded 691,745 tons of coal (including 24,921 tons of coke and 1,524 tons of patent fuel), a decrease of 20,982 tons compared with 1900.

(c) *Jherria*.—This field, which was opened in 1894, has an area of 180 sq. miles in the form of a lozenge pointed at both ends. The formations in descending order are—

- (1) Raneegunge or Upper Coal Series with two workable seams.
- (2) Ironstone shales without coal seams.
- (3) Barakar or Lower Coal Series with at least 18 seams over 5 feet thick.

Strike faults are numerous, and the mica-peridotite dykes have burnt the coal in some cases passing along the seams in laccolitic form. The deepest shaft is 320 ft. deep. The last reference to the field is published in the report of the Committee, which met at Simla in July 1901, to consider certain questions relating to Jherria. It is estimated that, within a depth of 1,000 ft., there are 168,000,000 tons. The average value at the pit's mouth during the year was R2, and the freight to Calcutta R3-11-0, per ton.

The output for 1901 was 2,076,155 tons (including 94,542 tons of coke), or an increase of 376,882 tons compared with the preceding year. The output came entirely from the Lower Coal Series.

(d) *Raneegunge*.—Raneegunge, as mapped by Dr. W. T. Blanford in 1863, occupies an area of 500 sq. miles, and has the three divisions noted in Jherria. 2,932,095 tons (including 37,115 tons of coke) were produced in 1901, or an increase of 367,800 compared with 1900. The Upper Coal Series yielded 2,196,750 tons.

Several seams are worked in the Lower Coal Series, and during 1901, they yielded 735,345, or an increase of 71,142 tons compared with the preceding year. One shaft is 530 ft. deep. Two properties have electric light installations. The Jeffrey coal-cutter was tried, but is not now in use. The average value at the pit's mouth during 1901, was R2-4-0, and freight to Calcutta R2-12-0.

(e) *Daling*.—The Daling Colliery has been closed during the year.

Burma (Thingadaw).

The Thingadaw coalfield is 4 miles from Kabwet on the Irrawaddy river and 60 miles above Mandalay. The seam has a thickness of 6 ft., and a dip of 39°.

The output for 1901 was 12,466 tons, or an increase of 2,238 tons compared with 1900.

Central Provinces.

Mohpani is 80 miles from Jubbulpore, and is connected by a colliery line with the Great Indian Peninsular Railway. There are four seams of steam coal with thicknesses of 18 (including 6 ft. of "cannel" coal) 22, 4 and 6 ft. and a dip of 19°. The coal contents of the field are estimated at 1 to 3 million tons. The coal does not cake. During 1901, 43,046 tons were raised, or an increase of 3,434 tons compared with the preceding year.

Warora is at the terminus of a branch line from the Great Indian Peninsular Railway. There are two seams each 10 ft. thick with a dip of 30°, and worked at depths varying from 100 to 300 ft. The coal does not cake. The output for 1901 was 148,470 tons, and for 1900, 133,230 tons of coal.

Punjab.

During 1901, the Dandot mines and the mines at Pidh have yielded 67,730 tons of coal, including the slack coal which is made into briquettes—a decrease of 6,353 tons compared with the preceding year; 5,760 tons of patent fuel were made during the year.

A Stevens plant, f. o. b. in England but exclusive of engine and boiler, costs £600, and is in operation at Haranpur. It yields an output of nearly 20 tons per day of 10 hours for 25 days in the month, or a yield of 5,760 tons in the year. Labour costs 61 annas a day for 11 coolies, or R0-3-0-per ton.

The coal used by the boiler is $1\frac{1}{4}$ tons per day. Pitch is imported from England.

A contractor has recently offered to put down a Stevens plant at Khost for making 800 tons per month at R1-12-per ton. He supplies an engine, boiler, and boiler-coal, but coal-dust and pitch are to be delivered at the plant.*

The Dandot seam is 30" in thickness, and has a dip varying from 2° to 3°. The cost of mining is about R5-13 per ton.

(II)—COLLIERIES IN NATIVE STATES.*Central India (Rewah State).*

At Umaria, there are two seams worked, *viz.*, Nos. 2 and 3 which are 7 ft. and 11 ft., respectively, in thickness, and have a dip of 3°. The output for 1901 was 164,362 tons of coal, and for 1900, 164,489 tons. The coal does not cake.

The seams at Johilla are being tested.

Hyderabad (Deccan).

The Singareni coal-field is $13\frac{1}{2}$ miles long, and on the average, $2\frac{1}{2}$ miles broad. The King seam is 3' 7" to 6" in thickness, and contains 36 million tons of coal, which is of value for steaming purposes but will not cake. The fuel is used on the railways, and has also been supplied to Bombay and Madras. The output for 1900 was 421,218 tons of coal, or a decrease of 48,073 tons compared with the preceding year.

Rajputana (Bikaner).

A seam of dark brown coal, 18 ft. thick, was discovered during the year 1896 in a well, 212 ft. deep, and has now been opened out. The output for 1900 was 92,50, and for 1901, 12,094 tons.

(B.) Minerals other than coal.

The minerals other than coal will be considered under two heads from
(1) Mines and quarries in British India affected by the Indian Mines Act.
(2) Mines and quarries in British India not affected by the Act, and in Native States.

(1)—MINES AND QUARRIES AFFECTED BY THE INDIAN MINES ACT.**CLAY.**

Fuller's earth is being mined in the Central Provinces. The output for 1901 was 330 tons.

CORUNDUM.

Corundum is plentiful in Southern India, and in the Salem District of Madras, is obtained (1) from bands in gneiss and granite on which quarries have been opened; (2) from the soil which contains loose fragments of corundum. The total yield from both sources during 1901 was 22 tons 15 cwt.

* Particulars supplied by Mr. A. S. Mort.

GEMS.

(a) *Diamonds*.—There are two workings at Vajrakarur (Madras) belonging to India Exploration Company, and the Madras Diamond Mining Company. The first has not done any work for several years, and the second Company did not obtain any diamonds during 1901.

(b) *Rubies, Sapphires, and Spinel*s.—Most of the excavations come under Act VIII, but are confined to Upper Burma.

The Burma Ruby Mining Company produced at Mogok, in 1901, 230,811 carats of gems (or a decrease of 201 carats compared with the preceding year) comprising 210,784 carats of rubies, 9,786 carats of sapphires, and 10,241 carats of spinels. The workings consist of open quarries, up to 50 feet in depth, in the "hill-wash" and alluvium. The dirt is filled into trucks, which are hauled by an endless rope up to the surface and tipped into Rotary Pans similar to those used in Kimberley, and arranged in sets of three, the last one being a safety pan. The deposit from the pans is pulsed, and finally picked over by hand. The power is supplied (a) directly from Pelton wheels, (b) by electricity generated two miles away from the mines.

Natives have a number of workings near Mogok, and during 1901, paid Rs. 26,000 in royalties to the Burma Company. Their working expenses would be about the same amount.

GOLD.

(a) *Bengal (Chota Nagpur)*.—A small amount of prospecting work was done by the Pahardih Company.

(b) *Upper Burma*.—The Choukpazat mine in Burma has been steadily worked under the able management of Mr. C. M. P. Wright, and has milled 2,918 tons, giving 969 ozs. of plate-gold. The Cyanide plant yielded 1,015 ozs. of fine gold; the total value of the gold won is Rs. 1,14,100.

(c) *Madras*.—Three of the old mines were open at Wynaad during part of the year 1901, but did not yield any gold. Dr. Hatch's report on the field has been published as Memoir No. XXXIII of the Geological Survey of India.

GRAPHITE.

The quarries at Perakonda, Godavari district, Madras Presidency, produced 295 tons of graphite during 1901, a decrease of 105 tons compared with the preceding year.

LIMESTONE.

The limestone quarries at Katni (Central Provinces) have been declared to be under the Act. The output for 1901 was 8,370 tons.

MAGNESITE.

Magnesite occurs in veins traversing talcose schists, and is worked near Salem in Madras. During 1901, half a ton was raised, and twelve persons employed in getting the mineral. The mine was at work the whole year.

MANGANESE ORE.

Manganese is being actively quarried in the Vizagapatam district of Madras, about 500 miles north of the city of Madras and close to the seaboard. During 1901, 76,463 tons were raised by the Vizianagram Mining Company from the following quarries:—

Garbham quarries (Gajapatinagram taluk)	.	.	54,163 tons.
Kodur	"	"	18,210 "
Perepi	"	"	3,100 "
Paruja	"	(Chipurupalli taluk)	980 "
Perumalle	"	"	10 "
			76,463 tons.

or a decrease of 15,995 tons compared with the preceding year. The ore is hard and suited for furnace work.

The quarries in the Nagpur District of the Central Provinces yielded 81,264 tons, and prospecting operations in the Balaghat and Bhandara Districts gave 3,830 and 500 tons, respectively.

Thirty-eight thousand and two hundred tons were exported from Bombay and sent to the following countries :—

United Kingdom	.	.	.	.	.	.	9,400 tons.
Germany	.	.	.	.	.	.	11,800 „
Egypt	.	.	.	.	.	.	13,600 „
United States	.	.	.	.	.	.	3,900 „
							38,200 tons.

Presumably the ore came from Nagpur.

MICA.

The chief mines and quarries for mica are in British India, in (a) Bengal, (b) Madras, and most of the mineral raised is subject to Act VIII, but the returns give the total output—the amount won from shallow quarries is not separately shown.

(a) Bengal.

Hazaribagh district.—The mica-bearing belt in Hazaribagh occupies a large area, which belongs largely to native zemindars.

Government own the forest of Koderma, and annually grant leases to the highest bidder for blocks up to three acres in area. The bulk of the private land has been leased to Messrs. F. F. Chrestien & Co., who have a European superintendent and several managers (chiefly Babus) in charge of different areas. With the exception of Bendee, which Mr. A. Mervyn Smith is testing by means of systematic driving and sinking, all the mines are worked by “Native” methods. Mica occurs in veins of coarse pegmatite as more or less defined shoots, and as irregular patches of mineral similar to the occurrence of coarse gold in big milky-white quartz reefs so well known to reef-miners. The “books” of mica are of various sizes up to 24” by 18” by 10”, the more common being 8” by 4” by 3”. The usual practice is to prospect the surface during the rains for these “books” or indications of them, and then work the shoots or patches during the cold and hot weather. It frequently happens that, at the end of a season, a property has not a single “book” in sight, but the faith, which the mica-miners have in the unworked areas, is so great, that they look forward confidently to fresh finds and a successful season. Machinery is not used for pumping or winding, the work being done by hand labour. Women, who are seated on ladders, pass up chatties, filled with water (or baskets with mica), from hand to hand till they reach the surface, and empty chatties and baskets are returned into the mine by a second row of women; it is evident that the output from a small area will vary greatly from year to year.

The returns show an output of 768 tons for the year 1901; 628 tons were raised by one Company. The output for 1900 was 429 tons.

(b) Madras.

(1) *Nellore district.*—Sixty-six mines and quarries have been actively worked by native methods and yielded 225 tons of mica from veins of pegmatite, a decrease of 257 tons compared with 1900.

(2) *Nilgiris district.*—Several quarries have been worked in the Nilgiris district, and have yielded an output of 2½ tons during 1901. The occurrence of pipe-like veins of pegmatite at Cherambady is of special interest.

(3) *North Arcot district.*—A mine in the Chittore taluk was worked from 28th June to 30th November 1901 but did not yield marketable mica.

SALT.

Rock-salt is mined and quarried in the Punjab from beds associated with red marls and sandstones of Cambrian age. The mines and quarries are :—

(a) Mayo, Nurpur, Warcha and Kalabagh in the Salt Range, Jhelum district, Punjab.

(b) Kohat quarries, exempted by Government of India from operations of the Mines Act.

The quantity produced during 1901 under the Act is as follows:—

(a) Mayo	80,908·56 tons.
(b) Warcha	3,871·49 „
(c) Nurpur	135·63 „
(d) Kalabagh	5,326·28 „

Total 90,241·96 tons

or an increase of 10,246 tons compared with the preceding year.

SLATE.

Slate is said to be worked in small quantities in Agra and the Central Provinces, but the only quarries of importance in India are in two provinces:—

(a) Bengal, (b) Punjab, both of which came under Act VIII. There are no slate quarries being worked in Southern India.

(a) *Bengal.* Near Jamalpur, there are two beds of slate which are separated by 12 ft. of quartzite on the west, but come together in an easterly direction. They occur on the northern slopes of a well-defined range, and with it strike E. & W. with a dip to the north of 85° to 88°: the cleavage is distinct and makes an angle of about 3° with the bedding planes. Quarries were opened in the three nullahs which run at right angles to the range, but it was found that the outcrop of the rocks on the ridges between the nullahs instead of being nearly vertical had been pulled downwards by gravity, and presented an overhanging face which was a constant source of danger to the men working in the quarries. It was then decided to commence underground work, and chambers are now being cut out 15 to 25 ft. in height leaving a minimum cover of about 30 ft. A light bamboo platform is placed close to the roof, so that an examination of the latter can be readily made. The dressed slates are thicker than Welsh slates, but are specially suitable for the flat roofs of Indian bungalows. The output for 1901 was 1,237 tons.

(b) *Punjab.* The Kangra Valley Co. have quarries in two localities, (1) Kangra near Dharmsala, (2) Rewari in Gurgaon district. The output of the former for 1901 was 1,800 tons, and from the latter 1,165 tons, making a total of 2,965 tons. The slate is readily fissile, pale grey in colour, and can be obtained in large slabs, but it is not as fine in texture as Welsh slate.

STEATITE (SOAP-STONE.)

The mines on the western side of the Arrakan Yoma in the Kyaukpyu district of Lower Burma yielded 51 tons in 1900 from veins 7" to 9" thick in serpentine and worked to a depth of 56 feet. Figures for 1901 are not available.

TIN.

Tin occurs in the Mergui district of Lower Burma in (a) hill-wash which is ground-sluiced, (b) alluvium. The stanniferous belt occupies a large area, and the deposits have been worked at various places by Chinese and Siamese miners for many years. The pay-dirt varies from 6" to 8 feet in thickness, and has a cover with a maximum thickness of 30 feet. The over-burden is sluiced off to as great a depth as possible, and the remainder is lifted in baskets by hand-labour to the surface, where the dirt is washed in Long Toms. A sluicing lease, said to be 4 square miles in area, has been granted to Messrs. Hein and Money at Maliwun. The output for 1901 is stated to be 69½ tons valued at R1,16,595—a decrease of 35 tons compared with the previous year. The ore is smelted locally. The imports of tin for 1900 were 22,741 cwt. valued at R22,08,560.

(2)—MINES AND QUARRIES IN BRITISH INDIA NOT AFFECTED BY THE MINES ACT, AND IN NATIVE STATES.

ASBESTOS.

Asbestos is reported from a number of places, and a small quantity has been collected annually in Mysore for several years. The output for 1900 was only valued at Rs.

CLAY.

Brick and pottery clays are widely and actively worked throughout India, though little information is available about the operations. Brickmaking near Calcutta and along the Hooghly is an important industry, employing a number of labourers. Messrs. Burn & Co. have pottery works at Raneegunge and bricks are locally made on the various collieries in Bengal. Some of the pottery and brick-works in Assam, Madras, and Mysore are important. The output for 1900 is stated to be 4,130,425 tons, valued at R41,54,863.

COPPER.

Chalcopyrite (copper pyrites) is widely distributed but payable lodes of copper ore are rare. During 1901, 25 tons of copper ore were mined in Rajputana, a Native State, where copper pyrites occurs disseminated through black slates of older palæozoic age: the deposits have been worked for a number of years. During 1900, 159,971 cwt. of copper, valued at R91,71,330, were imported into India.

CORUNDUM.

In the Native State of Mysore, leases are sold by public auction. The output for 1900 was 1,385½ tons, valued at R3,382.

GEMS.

(a) *Amber.*

Amber is worked in unadministered territory north of Myitkyina, Upper Burma. During 1901, 97 cwt. of amber, valued at R175, was won from clay beds of tertiary age.

(b) *Diamonds.*

The mines at Bundelkhand (Central India) are in a Native State, and produced 169 carats, valued at R11,372, during 1900 from recent alluvium and a conglomerate of older palæozoic age.

(c) *Jade.*

Jade occurs north of Myitkyina in Upper Burma, (1) as boulders in alluvium, (2) associated with intrusive serpentine. The return for 1901 is stated to be 1,152 cwt., valued roughly at R32,116.

(d) *Rubies, Sapphires, and Spinels.*

Some of the workings for rubies, etc., in Mogok (Upper Burma) are less than 20 feet in depth, but the output cannot be separately stated.

GOLD.

Gold is won from (a) Alluvium, (b) Reefs.

(a) *Alluvium.*

Alluvial gold is won in a number of places, from shallow workings: the amount obtained is not great and cannot be stated in figures, but a fair number of persons are employed in the industry during the rains.

A dredging lease has been granted to Messrs. Moore & Co., who propose to commence work with a dredge, capable of working to a depth of 35 feet, on the Irrawaddy river in Upper Burma. It is a surprise that dredging for gold has not been previously tried in some of the Indian rivers.

(b) *Reefs.*

(1) *Hyderabad (Deccan).*—Towards the end of the year 1901, a new company was started under the management of Mr. C. W. Gray.

(2) *Mysore (Kolar)*.—The quartz veins in Kolar (Mysore) commenced to yield gold in 1882, and the output has been increased year by year. Official figures of the 1901 output are not available, but according to the published monthly returns, there was an increase of 8,401 ozs., compared with the preceding year. The monthly output from the chief mines has been markedly regular at 40,000 to 42,000 ozs., and for December, reached 43,000 ozs.

The five dividend-paying mines contribute 94 % of the total output. At the end of 1901, 660 stamps were at work, and it is anticipated that 800 will be at work before the end of 1902.

GRAPHITE.

Graphite is worked in the Native State of Travancore in Southern India by Messrs. Parry & Co., and during 1901, 2,432½ tons were raised, (1,526 tons at Velanaad, and 906½ tons at Cullum) ; compared with the preceding year, there is an increase of 1,003 tons.

The exports from Madras during 1901 were 1,556 tons valued at R1,71,666.

GRAVEL AND SAND.

Particulars about excavations for gravel and sand are very meagre ; few, if any, of them will come under the Act.

Returns, furnished from Bengal and Burma under the heading of gravel and rubble, state that, for 1900, 77,389 tons of the former, and 90,000 tons of the latter, were mined and valued at R55,818 and R40,000, respectively.

GYPSUM.

A bed of gypsum, 15 ft. thick, occurs in the Salt Range, but the chief supply comes from Nagore (Rajputana), where it is collected from alluvium. During 1900, 4,156 tons were obtained from Nagore (Rajputana) and 189 tons from Central India, valued at R1,413 and R285, respectively.

IGNEOUS ROCKS.

The returns do not refer to quarries in igneous rocks, and at present it is impossible to say how many quarries will be affected by the Act. During 1900, 362,935 tons of granite, valued at R2,88,081, were quarried. Ajmer-Merwara, which has been exempted from the operation of Act VIII, heads the list with 125,127 tons, Bengal yielded 100,000 tons, and Mysore produced 87,046 tons. The term granite is loosely used and includes gneiss.

Under the heading of Trap, 679,346 tons were reported from Berar and 65,000 from Bengal, valued at R89,951 and R54,000, respectively.

IRON-ORE.

The production of iron by native methods has been largely curtailed, owing to the competition of English iron, and during the visit of Professor C. Le Neve Foster, D. Sc., F.R.S., etc., in February 1902 to Bengal, there was considerable difficulty in finding any one near Giridih (an old centre for iron smelting), who knew the method.

It is well known that India possesses large deposits of high grade iron-ore, but it has been difficult to obtain supplies of suitable coke and limestone within easy distance of the deposits.

Pig-iron is smelted from iron-ore in Bengal at the Barakar Iron and Steel Works. Two blast furnaces are kept constantly at work, and a third is almost ready for use. It is proposed to erect steel works during 1902. The works supply pig-iron and castings of various descriptions, such as water pipes, railway-chairs, columns, pulleys, etc. The ore has been and is being obtained chiefly from shallow pits and trenches near Barakar (and other localities in the Ranee-gunge coal-field) in the Ironstone shales of the Gondwana System. At depth, the iron is in the form of carbonate, but it readily weathers, and at the surface, consists of hematite and limonite. The beds vary from 2 to 8 inches in

thickness, and form 1-17 of the whole series, which is 1,000 feet thick. During 1901, about 50,600 tons were obtained from Barakar and Adjai, and 7,800 tons of magnetite and hematite were also quarried at Kalimati and Barabhoom in Chota Nagpur (Bengal). The total production for India for 1900 is stated to be 63,073 tons valued at R1,67,567, of which Bengal contributed 57,000 tons, the Central Provinces 2,377, and Central India 1,614 tons. Small quantities were obtained also from Rajputana, Madras, and Mysore. The imports of iron, steel and their manufactures have doubled during the last 23 years, and for 1900, reached in value nearly 10 crores of rupees.

LATERITE.

The laterite quarries in Bombay, Lower Bengal, Madras, and Agra and Oudh, have been exempted from the operations of Act VIII. The name laterite is applied to rocks varying from a ferruginous clay to a conglomeratic iron-ore. It is widely distributed throughout India and is used for building purposes, canals, and roads. The output for 1900 was 556,304 tons, valued at R5,89,035: 201,127 came from Burma, 100,000 from Bengal, 172,152 from Mysore, and 78,412 tons from Rajputana.

LIMESTONE.

Limestone is widely distributed throughout India in beds of various geological ages, but is developed in areas which are some distance away from the centres, where trade in lime is of importance. Some of the beds are compact and yield a good building stone. The earthy nodular form known as kankar is widely distributed, and worked in the recent formations of the coal-fields. Cement is made near Madras and Calcutta (Bengal). During 1900, excepting Bombay, all the provinces produced some limestone. The total output was 1,182,892 tons valued at R7,60,408; 798,151 tons came from Agra and Oudh, and 135,039 tons from Rajputana. A quarry at Katni (Central Provinces) has been declared to be under the Act.

MARBLE.

The Makrana stone, and the grey and pink marbles of Jaipur and Jodhpur, are celebrated all over India, but are found in Native States. The white marble of Upper Burma is well known, and used for carving into the figures of Gaudama; the quarries are shallow. The output for 1900 cannot be stated, as the returns are not separated from limestone.

MICA.

The chief mines are in British India, and a small amount only is won from shallow workings—the output cannot be stated in figures.

PETROLEUM.

Particulars of production are given in the report of the Director-General of Statistics. At Yenangyaung, one well is 1,890 feet in depth.

SALT.

In addition to the output of the Mayo, Warcha, Nurpur and Kalabagh mines and quarries in the Punjab, salt is obtained in India—

- (1) By evaporation of sea-water in Bombay and Madras; (2) by evaporation from inland salt lakes, *e.g.*, Sambhar Lake in Rajputana; (3) by evaporation of water from springs, *e.g.*, Burma, etc., (4) from beds of rock-salt in the Punjab—

(a) Kohat quarries.

(b) Mandi State.

During 1900, 1,005,293 tons of salt were produced in India and 347,787 tons were imported, chiefly to Bengal and Burma, from Europe, Aden, Jeddah, Muscat, and a few unimportant places.

SALTPETRE.

Saltpetre is obtained chiefly in Behar, from the soil which is collected and placed on a layer of vegetable ashes in jars. Water, which is poured into the jars, dissolves out a percentage of the soluble salts, and, after passing through the filter of ashes, is drawn off and evaporated to the crystallising point. The crystals of nitrate of potash are taken out, leaving the sulphate of soda in the mother liquor. The production for 1900 was 230,472 tons.

SANDSTONE.

The returns do not contain statistics about sandstone, although the tonnage of stone produced under Act VIII must be considerable. During 1900, 394,217 tons, valued at R4,30,974, were quarried in India; 150,754 tons were reported from Agra and Oudh, and 153,689 from Rajputana, where a red sandstone is being effectively used for decorative building purposes, *e.g.*, the new Palace of the Rajah of Bikaner.

STEATITE (SOAPSTONE).

Except the mines in Burma, most of the excavations for steatite do not come under the Act. Out of a total of 2,495 tons raised in India during 1900, 2,205 came from Native States.

TIN.

Some of the workings at Mergui (Burma) are less than 20 feet in depth, but their output cannot be separately stated.

Section III.—Accidents.

A rule under Act VIII to provide for notification of serious (including "fatal") accidents and explosions in British India was gazetted on 25th December 1901. Prior to its publication, reports of fatal and some serious accidents were courteously furnished, during 1901, by owners and managers of the chief mines and quarries in :—(1) British India, including the provinces of Assam, British Baluchistan, Bengal, Burma, Central Provinces, Madras and Punjab ; (2) Hyderabad (Deccan), a Native State. Annual returns only were furnished by the other Native States ; details of accidents in Kolar are given in the published reports of the Geological Department of the Mysore State.

Notices of thirty serious (non-fatal) accidents were received. They will not be referred to, because the majority of managers did not report serious accidents.

This Section therefore deals with fatal accidents at (1) Coal mines in Assam, Baluchistan, Bengal, Burma, Central Provinces and Hyderabad, (2) Corundum, Diamond, Graphite, Manganese and Mica mines in Madras, (3) Mica and Slate mines in Bengal, (4) Gold and Ruby mines in Upper Burma, (5) Salt mines in Punjab.

Table No. 21 gives the number of deaths, for each accident during 1901. 80 fatal accidents caused the loss of 102 lives (85 men, 14 women and 3 children). Compared with the previous year, there is an increase of 22 accidents and 28 deaths, but the increase is probably apparent and due to the fact that, in 1900, all the accidents were not reported. During 1901, one disaster entailed the loss of nine lives and another fatality was responsible for four deaths ; three accidents were attended with three deaths each, and five with two deaths. The remaining 70 (or 87%) of the accidents caused 70 (or 69%) of the deaths. It is noticeable that the greater number of deaths during 1900 and 1901 has been due to accidents causing one death and not to catastrophies.

TABLE No. 21.

Number of Deaths caused by each Accident during 1900 and 1901.

1900.				1901.			
No. of Separate Accidents.	No. of Deaths per Accident.	Total Number of Deaths.	Percentage of Total Number of Deaths.	No. of Separate Accidents.	No. of Deaths per Accident.	Total Number of Deaths.	Percentage of Total Number of Deaths.
46	1	46	62·16	70	1	70	68·63
9	2	18	24·32	5	2	10	9·81
2	3	6	8·11	3	3	9	8·82
1	4	4	5·41	1	4	4	3·92
...	...	...	...	1	9	9	8·82
58	...	74	100·00	80	...	102	100·00

Table No. 22 shows the number of deaths and accidents for each different class of Mine and Province.

Bengal heads the list with 40 (or 50%) of the accidents, and 47 (or 46%) of the deaths, an increase of five accidents, and a decrease of three deaths compared with the preceding year. Madras records 8 accidents and 19 deaths (an increase of 18 deaths), Assam 5 accidents and 8 deaths, and Baluchistan 6 accidents and 6 deaths.

The coalfields are responsible for 62 (or 77%) of the accidents, and 70 (or 69%) of the deaths. The Raneeunge field totalled 24 accidents and 29 deaths, or a decrease of 1 accident and 8 deaths. Hyderabad records 12 accidents and 12 deaths, Giridih 8 accidents and 8 deaths, Assam 5 accidents and 8 deaths, Khost 6 accidents and 6 deaths, and Jherria reports 5 accidents and 5 deaths.

The Mica mines had 7 casualties and 18 deaths. Madras reported 5 accidents and 16 deaths, and Hazaribagh (Bengal) 2 accidents and 2 deaths.

The Salt mines record 3 accidents and 3 deaths.

Ninety-six persons (81 men, 13 women and 2 children), or 94 % of the total number, were hurt underground, and 6 persons (4 men, 1 woman and 1 child) on the surface—an increase of 25 and 3 persons, respectively, under and above ground.

TABLE No. 22.

Fatal Accidents and Deaths during 1901 classified according to the Mineral worked.

KIND OF MINERAL.	Province and Field.	FATAL ACCIDENTS DURING 1901.										COMPARISON WITH PRECEDING YEAR.	
		No. of Separate Acci- dents.	NUMBER OF DEATHS.								Gross Total for 1901.		
			UNDER GROUND.				ABOVE GROUND.						
			Men.	Women.	Child- ren.	Total.	Men.	Women.	Child- ren.	Total.			
CLAY . .	Central Provin- ces.	...	...	...	...	...	...	...	...	...	...	...	...
COAL . .	Assam . .	5	4	4	...	8	...	...	...	Nil	8	...	+ 3
	Baluchistan .	6	6	...	...	6	...	...	...	Nil	6	+ 3	+ 3
	Bengal—Daltongunge .	...	...	...	...	Nil	...	...	...	Nil	Nil	...	...
	Giridih . .	8	7	1	...	8	...	...	...	Nil	8	+ 4	+ 4
	Jherria . .	5	3	1	...	4	...	...	1	1	5	+ 3	+ 3
	Raneegunge .	24	25	2	...	27	2	...	...	2	29	— 1	— 8
	TOTAL .	37	35	4	Nil	39	2	...	1	3	42	+ 6	— 1
	Burma . .	Nil	...	...	...	Nil	...	...	...	Nil	...	— 1	— 1
	Central Provin- ces—Mohpani .	1	...	...	...	...	1	...	...	1	1	...	...
	Warora . .	1	1	...	...	1	...	...	...	Nil	1	+ 1	+ 1
TOTAL .	2	1	Nil	Nil	1	1	Nil	Nil	1	2	+ 1	+ 1	
CORUNDUM .	Hyderabad* (Deccan).	12	8	2	2	12	...	...	...	...	12	+ 4	+ 3
	Punjab . .	Nil	...	...	...	Nil	Nil	...	...	Nil	Nil	— 2	— 2
	TOTAL .	62	54	10	2	66	3	...	1	4	70	+ 11	+ 6
GEMS—													
DIAMONDS .	Madras . .	2	2	...	...	2	...	...	...	Nil	2	+ 2	+ 2
RUBIES, SAP- PHIRES, & SPINELS.	Upper Burma .	4	4	...	...	4	1	...	...	1	5	+ 4	+ 5
TOTAL .		6	6	...	...	6	1	...	...	1	7	+ 6	+ 7
GOLD . .	Upper Burma .	Nil	...	...	...	Nil	...	...	...	Nil	Nil	...	...
	Hyderabad .	Nil	...	...	...	Nil	...	...	...	Nil	Nil	— 1	— 1
	TOTAL .	Nil	...	...	...	Nil	...	...	...	Nil	Nil	— 1	— 1
GRAPHITE .	Madras . .	Nil	...	...	...	Nil	...	...	...	Nil	Nil	...	...
LIMESTONE .	Central Provin- ces.	Nil	...	...	...	Nil	...	...	...	Nil	Nil	...	...
MAGNESITE .	Madras . .	Nil	...	...	...	Nil	...	...	...	Nil	Nil	...	...
MANGANESE- ORE.	Madras . .	1	...	...	...	Nil	...	1	...	1	1	+ 1	+ 1
NICA . .	Bengal . .	2	2	...	...	2	...	...	...	Nil	2	— 2	— 5
	Madras . .	5	13	3	...	16	...	...	...	Nil	16	+ 4	+ 15
	TOTAL .	7	15	3	...	18	...	...	...	Nil	18	+ 2	+ 10
SALT . .	Punjab . .	3	3	...	...	3	...	...	...	Nil	3	+ 2	+ 2
SLATE . .	Bengal . .	1	3	...	...	3	...	...	...	Nil	3	+ 1	+ 3
GROSS TOTAL IN 1901 .		80	81	13	2	96	4	1	1	6	102	+ 22	+ 28

* Not affected by the Indian Mines Act.

In Table No. 23, accidents and deaths for 1901 are classified according to place and cause under the following headings—I. Underground, (a) Falls of ground, (b) Shaft Accidents, (c) Miscellaneous, II. Surface.

Falls of ground are responsible for 53 per cent of the accidents and 58 per cent of the deaths with an increase of 17 accidents and 25 deaths compared with the preceding year. In all parts of the world, efforts are being made to reduce the number of deaths by falls of ground, and the success, which has attended these efforts, is shown by the fact that, from 1850 to 1870, in England the death-rate was between 1.51 and 2.50 per 1,000 employed, from 1870 to 1890, 1.5 to 1.1, and since 1890, it has always been below 1.

The figures under the other headings do not show a marked increase or decrease compared with 1900.

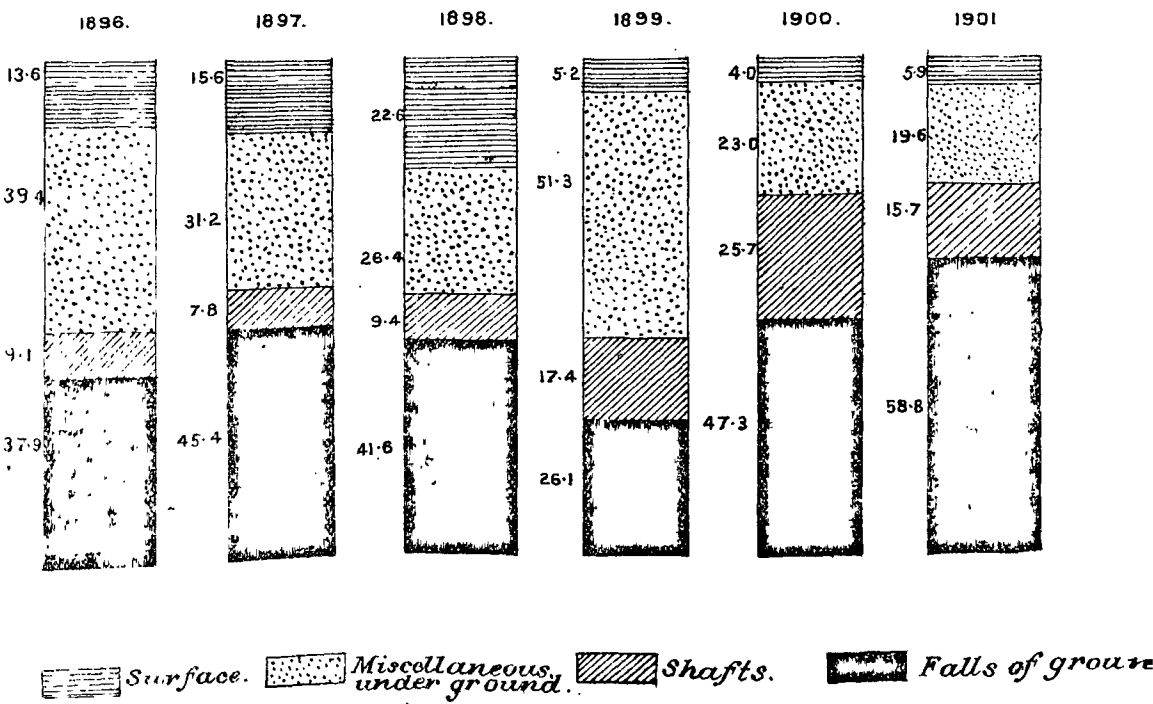
TABLE No. 23.
Fatal Accidents and Deaths arranged according to Place or Cause.

Place or Cause.	FATAL ACCIDENTS DURING 1901.				COMPARISON WITH PRECEDING YEAR.	
	Number of Separate Accidents.	Percentage of Total Number of Accidents.	Deaths from the Accidents.	Percentage of Total Number of Deaths.	Separate Accidents.	Deaths.
I.—Underground Accidents . .						
(a).—Falls of ground . .	43	53.75	60	58.82	+17	+25
(b).—Shaft accidents . .	14	17.50	16	15.69	— 1	— 3
(c).—Miscellaneous . . .	17	21.25	20	19.61	+ 3	+ 3
II.—Surface Accidents . . .	6	7.50	6	5.88	+ 3	+ 3
TOTAL .	80	100.00	103	100.00	+22	+28

The diagrams in fig. 2 show the proportion of deaths for each class of accident for the years 1896 to 1901 inclusive.

The deaths due to Surface and Miscellaneous Underground causes have decreased, but fatalities in shafts have increased. In falls of ground, 1899 has the lowest, and 1901 has the highest record for the six years in question.

FIG. 2.
Proportion of Deaths from Different Classes of Accidents, 1896-1901.



In Table No. 24, Fatal Accidents are classified according to Place or Cause under a number of sub-headings, and a comparison with the preceding year is also given. From falls of roof and side, there are increases of nine and sixteen deaths, respectively. Under Shaft Accidents, there is a decrease of six deaths from ascending or descending by machinery. Haulage has an increase of seven deaths due to engine and inclined planes, and a decrease of five from tram and tub-accidents. Surface Accidents show an increase of four deaths on Railways, Sidings, and Tramways.

TABLE No. 24.

Fatal Accidents and Deaths classified according to Place and Cause.

Place or Cause of Accident.		1901.				COMPARISON WITH THE PRECEDING YEAR.					
		Number of Separate Fatal Accidents.	DEATHS.				Number of Separate Fatal Accidents.	DEATHS.			
			Men.	Women.	Children.	TOTAL.		Men.	Women.	Children.	TOTAL.
FALLS OF GROUND.	Falls of Roof . . .	24	31	3	1	35	+ 5	+ 8	...	+ 1	+ 9
	Falls of Side . . .	19	20	5	...	25	+12	+13	+ 3	...	+16
TOTAL . . .		43	51	8	1	60	+17	+21	+ 3	+ 1	+25
SHAFT ACCIDENTS.	Overwinding . . .	3	5	...	...	5	+ 2	+ 3	...	...	+ 3
	Ropes or Chains breaking.	...	...	...	...	...	...	...	...	...	...
	Ascending or Descending by Machinery.	2	1	1	...	2	- 5	- 7	+ 1	...	- 6
	Falling into Shaft from Surface.	4	4	...	...	4	+ 2	+ 2	...	...	+ 2
	Falling from Part Way down.	1	1	...	...	1	...	...	...	...	...
	Things falling from Surface.	2	2	...	...	2	...	- 2	...	...	- 2
	Things falling from Part Way down.	2	2	...	...	2	+ 1	+ 1	...	...	+ 1
	Miscellaneous . . .	...	...	...	...	...	- 1	- 1	...	...	- 1
TOTAL . . .		14	15	1	...	16	- 1	- 4	+ 1	...	- 3
MISCELLANEOUS UNDERGROUND.	Explosions of Fire-damp or Coal Dust.	1	3	1	...	4	+ 1	+ 3	+ 1	...	+ 4
	Suffocation by Natural Gases.	...	...	...	...	...	...	...	...	...	...
	By Explosives . . .	4	4	...	...	4	+ 1	- 2	...	...	- 2
	Eruptions of Water or falling into water.	...	...	...	...	...	- 1	- 1	...	...	- 1
	Haulage.—										
	On Inclined or Engine Planes.	8	6	2	...	8	+ 7	+ 5	+ 2	...	+ 7
	Ropes or Chains breaking.	3	2	...	1	3	+ 3	+ 2	...	+ 1	+ 3
	By Trams and Tubs.	1	...	1	...	1	- 5	- 5	...	...	- 5
	By Machinery . . .	...	...	...	...	...	...	...	...	...	...
	Sundries . . .	...	...	...	...	...	- 3	- 2	- 1	...	- 3
	TOTAL . . .		17	15	4	1	20	+ 3	...	+ 2	+ 1	+ 3
TOTAL UNDER GROUND.		74	81	13	2	96	+19	+17	+ 6	+ 2	+25

TABLE No. 24—continued.

Place or Cause of Accident.	1901.					COMPARISON WITH THE PRECEDING YEAR.				
	Number of Separate Fatal Accidents.	DEATHS.				Number of Separate Fatal Accidents.	DEATHS.			
		Men.	Women.	Children.	TOTAL.		Men.	Women.	Children.	TOTAL.
ON SURFACE.										
By Machinery . .	1	1	...	...	1	+ 1	+ 1	...	...	+ 1
Boiler Explosions . .	...	..	...	...	...	...	...	...	...	...
Railways, Sidings or Tramways.	5	3	1	1	5	+ 4	+ 2	+ 1	+ 1	+ 4
Miscellaneous . .	...	...	...	..	...	— 2	— 2	...	...	— 2
Total on Surface . .	6	4	1	1	6	+ 3	+ 1	+ 1	+ 1	+ 3
GROSS TOTAL	80	85	14	3	102	+22	+18	+ 7	+ 3	+28

The different classes of accidents will now be considered separately :—

I—UNDERGROUND.

(a)—Falls of Ground.

During 1901, 60 persons or 59 per cent of the total number were killed by falls of ground ; 33 deaths occurred at coal, 16 at mica, 4 at ruby, 3 at salt, 3 at slate, and 1 death at diamond mines and quarries.

Falls of roof.

Thirty-five persons were fatally injured by falls of roof ; 24 deaths were at coal mines and quarries, 9 at mica and 2 deaths at salt mines and quarries.

The nine deaths were due to one accident in a mica mine ; the ground above the men collapsed from the weight of a loaded wagon which passed over it.

One accident (two deaths) was caused by the collapse of an abandoned portion of a coal mine. The roof was supported by small pillars which suddenly collapsed, and the surface (roughly 600' × 300') sunk to a maximum depth of about 5 ft. The air-blast produced by the fall of roof hurled four men against the coal pillars—two were fatally injured. The floor of the mine had been bumping for several hours, but the manager did not apprehend danger.

Two casualties happened while timber was being drawn, and three deaths followed the foolish practice of collecting stone from the goaf. In one case, while the roof was being sounded, it fell, and several accidents occurred in places which had not been thoroughly tested.

Falls of side.

Twenty-five deaths are due to falls of side, 9 in coal mines and quarries, 7 in mica, 3 in slate, 1 in diamond, 1 in salt, and 4 at ruby mines and quarries.

Quarries have been responsible for 18 deaths. In one case, 18 coolies were working in an open untimbered excavation, 30 feet deep in loose sand. One of the sides was vertical, and another side had a slight slope—portion of the latter collapsed and buried three coolies. Two were rapidly extricated and were unhurt, but it took an hour to find the girl. The other accidents were due chiefly to the fact that proper slopes were not given to the sides of excavations.

In mica and slate mining, it is frequently necessary to cut trenches, and, where it is not possible to slope the sides (as is done in the case of railway earth-cutting), timber should be put in or barriers of rock left, in order to keep the sides apart. It is popularly supposed that mining is more dangerous than quarrying, but statistics show that, in the United Kingdom, the death-rate in quarries is much higher than in mines.

The mines are responsible for seven deaths; they do not call for special remarks, but it is desirable to note that systematic timbering, in the United Kingdom and on the Continent, has diminished the death-rate due to falls of ground: the regulations adopted by the Mining Association of Great Britain are as follows.

1. Propping of Roof.

Where timber is used to support the roof, the owner, agent, or manager shall keep, posted up at the mine, a notice specifying for each seam, or district of a seam, the maximum distance apart at which props or other roof-supports at the working faces are to be set, and the persons setting props or other roof supports shall see that the maximum distance is not exceeded.

2. Spragging.

Where holing is being done, sprags or holing props shall be set as soon as there is room, and the distance between such sprags or holing props shall not exceed six feet, or such less distance as shall be ordered by the owner, agent, or manager.

3. Supply of Timber.

A sufficient supply of suitable timber shall be kept at or within (the distance to be arranged in each district) yards of every working place where mineral is being gotten.

4. Drawing Timber.

Wherever timber has to be withdrawn from the waste or other disused parts of the mine, the prop drawer shall have with him a—"ringer and chain," "dog and chain," or other suitable appliance ready for use.

(b)—Shaft Accidents.

In 1901, there were 14 accidents and 16 deaths (or 15 per cent of the total number), a decrease of 1 and 3, respectively, in comparison with 1900, but as pointed out in last year's report, the percentage is too high considering the tonnage of mineral raised by manual labour up inclines.

Overwinding heads the list with five deaths: there were three accidents at three pits. While four men were being raised in a bucket from the bottom of a sinking pit, 157 feet deep, the speed of winding was increased, and the Khalassie-in-charge ran away and left his engine. The bucket was wound over the pulley, and two men were ejected: one fell to the ground and was killed, but the other clung to a cross beam of the pit-head frame. After striking the ground, the bucket was hauled up again and was unhooked on contact with the cross beam. The two men were ejected and one died 24 hours later.

In another accident, an empty cage was overwound and struck the top beams of the frame: the socket on the rope broke, and the cage fell to the bottom of the pit. The released rope passed into the engine house, struck and killed the fireman who was standing close to the engine driver: when the engine was stopped by the coiling of the rope round the gearing of the drum, the other cage, containing two men, was above the surface of the ground.

In the third case, the engine Khalassie was away from the engine house, and the fireman overwound a cage containing two men. The links below the D link snapped, and the cage fell to the bottom of the shaft which is 196 feet deep.

Under ordinary circumstances, natives can be entrusted with winding operations, but if anything unusual occurs, many of the men cannot be relied upon for promptness of action. Many lives have been saved by the use of detaching hooks, and a number of engineers are in favour of automatic speed-checkers and stopping gears which however have not been introduced in India.

Two accidents are recorded under the sub-heading Ascending and Descending by machinery. While three women were descending a pit 270 feet deep, one of them fell out of the cage to the bottom of the shaft. A bar, which the miners can grasp, runs longitudinally through the cage, but the ends are open; the manager of the mine has now placed a bar at each end of the cage. At one Indian colliery, moveable gates are used instead of bars. The second accident happened to a banksman who put his head out of the ascending cage and was jammed against a beam at the mouth of the pit.

Four deaths are recorded from falling into the shaft from surface. At a number of collieries in Bengal, bucket-pits are in use. The coal or stone is filled into a bucket, and raised by machinery up the shaft and above the level of a trolley, which is run forward and partly covers the mouth of the pit. After the full bucket has been lowered on to the trolley and unhooked, an empty one is attached to the rope and raised. The trolley is then run back, and the bucket is allowed to descend. In one case, while the banksman was steadying the descending bucket, the trolley was moved back from the pit-mouth and he fell forward into the shaft. Another banksman, who was unhooking a loaded bucket, overbalanced and fell into the pit.

Two casualties happened at cage-pits. While a banksman was pushing a loaded tub out of the cage on to the flat sheets at the bank, the engine-khalassie raised the cage—the banksman fell to the bottom of the shaft, 170 feet deep. Another banksman pushed a tub into a shaft, and fell to the bottom of the pit, 380 feet deep. The pit mouth was properly fenced, but the gates are opened by hand, and had been left open. It is usual to have gates which are lifted by the ascending cage and drop automatically when the descent commences. In England, stops are often used to prevent tubs from running into shafts, and at the Pennsylvania mines, a combined fence and stop is used.

Four deaths are recorded from things falling from surface or part way down. In pits, where two buckets are run without guides, there is danger of collision, and one casualty resulted from a piece of coal falling from the ascending bucket on to the head of a man at the bottom of the shaft.

In one small pit, the Company have provided guide-ropes and wind the tubs to the surface. Unfortunately, the trolley did not quite cover the shaft mouth, and, when a full tub had been landed, a piece of coal fell on to the trolley, rolled into the pit—the space was only 3 inches in width—and on to the head of a man at the bottom.

(c).—Miscellaneous Underground.

This division is responsible for 20 deaths or 19 per cent of the total number killed.

Haulage caused 12 deaths or an increase of 5 compared with 1900. Table No. 25 shows the occupation of each person at the time of accident.

TABLE No. 25.
Underground Haulage Accidents.

Nature of Accident.	Number of Fatal Accidents.	Number of Deaths.
While engaged as riders, drivers, tram-men, etc.	2	2
„ „ „ coupling and uncoupling	1	1
„ „ „ road-men, oilers, etc.	2	2
„ „ „ in walking in-bye or out-bye to or from their work .	3	3
In other ways	4	4
TOTAL .	12	12

The number of casualties to persons, walking to or from their work, was three. The necessity of providing a sufficient number of manholes in the haulage roads, which are used as travelling roads, is evident.

Four accidents are recorded under the sub-heading of explosives. In one case, the sirdar and two sinkers descended the pit an hour after the explosion of 12 dynamite charges. The fumes had not cleared, and, after the men had returned to the surface, one of them became ill and died. A second accident arose from the use of a steel bar in tamping a charge—the men were aware that they were transgressing one of the special rules of the mine. In the third case, while a hole was being drilled, a piece of undischarged dynamite from a previous charge exploded.

II.—ON SURFACE.

Under the heading of Railways, Sidings and Tramways, there are five accidents recorded, or an increase of 4 compared with 1900.

In one case, while a child (two years of age) was sitting on the inner rail at the wharf between two stationary East Indian Railway wagons, several coolies were shunting other wagons. The latter collided with one of the stationary wagons, which moved and struck her. The two chaprassies who were in charge of the loading operations, were away at the time of the occurrence. Two persons were run over whilst crossing tram-lines, and, while a fourth was riding on the buffer-end of a tractor, he slipped and fell on to the line: a wheel passed over his leg, and he died three days later.

In the fifth accident, a trammer was hand-shunting a tub, and, on arrival at a section of the line having a down-grade, he got inside the tub. The latter travelled to a bridge safely, but then left the rails and fell to the bottom of a nullah 30 feet in depth.

III.—FATALITIES REPORTED BUT NOT CLASSED AS MINE ACCIDENTS.

An accident which occurred at Borrea Colliery was reported, but on enquiry it proved to have happened on the East Indian Railway line. The case was sent to the Consulting Engineer for Railways.

Death-rates.

During 1901, there were 80 accidents and 102 deaths, or an increase of 22 accidents and 28 deaths compared with 1900. To compare the 1901 record with previous years, however, it is not sufficient to know the number of accidents and deaths only, for, as pointed out in the General Report of Mines and Quarries in the United Kingdom for the year 1900, both tonnage of mineral won and the number of persons employed should be taken into account. Figure 3 shows the number of persons employed and the number of deaths from all causes from 1896 to 1901; the curve for the former which is read from the right hand scale shows a steady increase, but the number of deaths (read from the left-hand scale) has not correspondingly increased.

FIG. 3.

Number of Persons Employed and the Number of Deaths from Accidents from all causes at Mines and Quarries in India, (except Kolar Goldfield (Mysore), the Umaria Colliery in Rewah State, and several unimportant mines in other Native States).

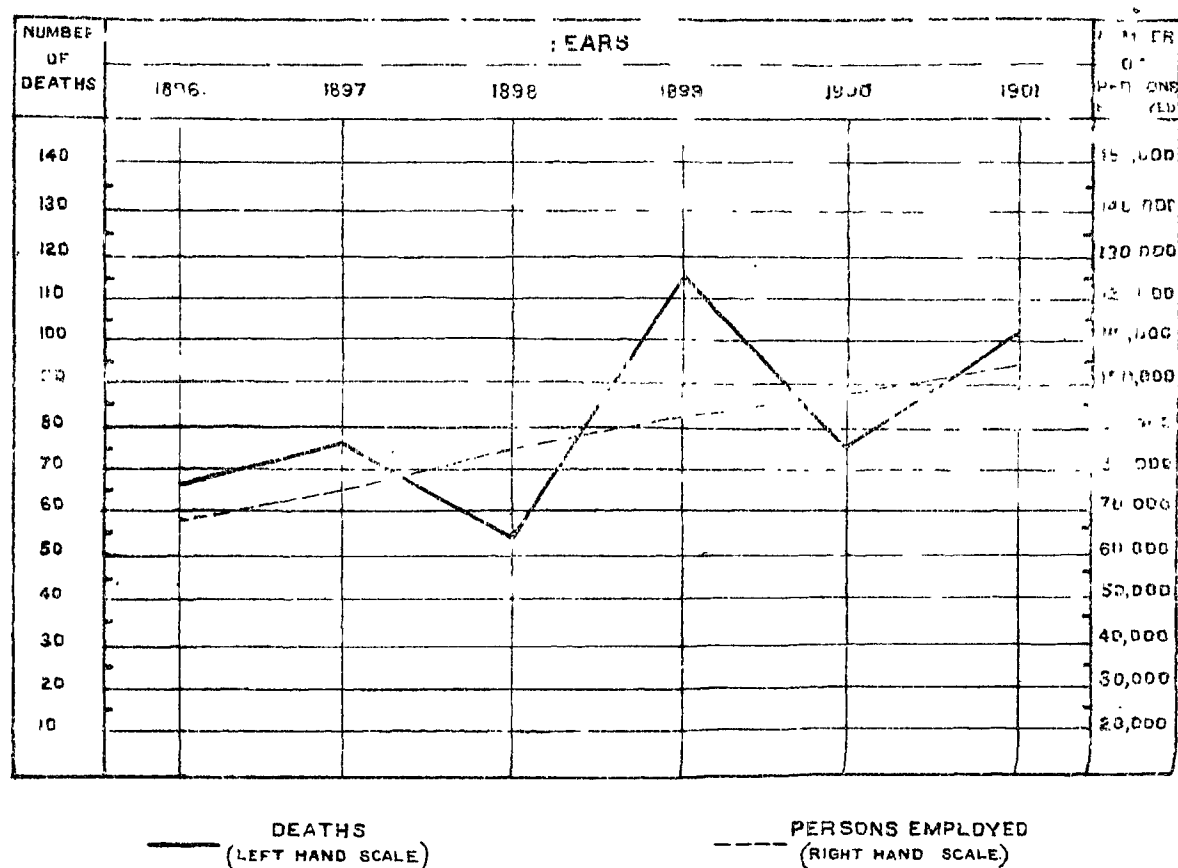


Table No. 26 shows the death-rate from all causes per 1,000 persons employed for (1) Underground workers, (2) Surface workers, (3) Underground and Surface workers, during the years 1900 and 1901.

The mines and quarries are responsible for 1·26, 0·16, and 0·91 during 1901, and 1·07, 0·10, and 0·77 deaths during 1900. The record for Corundum, Gold, Graphite, Limestone, and Magnesite mining during 1901 is nil. Coal is responsible for 1·04, 0·14, and 0·75 deaths, respectively—a slightly higher record than in 1900. The figures for the salt mines are 2·05, nil, and 1·87, respectively. In the slate mines, there was one accident and three deaths, but the rates amount to 8·13, nil, and 3·86, respectively. Mica mines have a record of 0·32 for Bengal, and 5·39 for Madras, and the Diamond Mines at Madras register for one accident and two deaths, 18·18 deaths per 1,000 persons employed under and above ground.

Of the coal-fields, the record during 1901 for Daltongunge, Thingadaw (Burma), and Dandot (Punjab) is nil. Jherria is responsible for 0·18, Raneegunge for 0·70, Giridih 0·70, Warora 0·79, Mohpani 1·05, Hyderabad 1·58, Assam 6·61, and Baluchistan 12·01 deaths per 1,000 persons employed under and above ground. Raneegunge shows an improvement compared with the 1900 record.

TABLE No. 26.

Mineral wrought.	Province and Field.	Number of persons employed during 1901.	Number of deaths during 1901.	DEATH-RATE PER 1,000 PERSONS EMPLOYED.					
				DURING 1901.			DURING THE PRECEDING YEAR.		
				Under-ground workers taken separately.	Above-ground workers taken separately.	Under and above ground.	Under-ground workers taken separately.	Above-ground workers taken separately.	Under and above ground.
COAL	Assam—Makum . .	1,210	8	9.72	Nil	6.61	5.48	Nil	3.70
	Baluchistan—Khost . .	461	6	22.06	Nil	13.01	9.74	Nil	6.09
	Bengal—Dalkongunge . .	399	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	Giridih . .	10,711	8	1.09	Nil	0.75	0.53	Nil	0.35
	Jherria . .	27,346	5	0.22	0.11	0.18	0.11	0.17	0.12
	Raneegunge . .	41,196	29	0.98	0.15	0.70	1.45	0.08	0.99
	TOTAL . .	79,652	42	0.73	0.11	0.53	0.83	0.09	0.60
	Burma—Thingadaw . .	203	Nil	Nil	Nil	Nil	8.62	Nil	3.59
	Central India*—Umaria . .	...	...	...	...	...	...	...	...
	Central Provinces—Mohpani . .	955	1	Nil	3.88	1.05	1.68	Nil	1.20
	Warora . .	1,265	1	1.25	Nil	0.79	Nil	Nil	Nil
	TOTAL . .	2,220	2	0.67	1.38	0.90	0.67	Nil	0.48
	Hyderabad*—Singareni . .	7,616	12	1.91	Nil	1.58	1.19	0.74	1.12
	Punjab—Ladnot . .	1,536	Nil	Nil	Nil	Nil	1.42	Nil	1.09
	Rajputana*—Bikaner . .	...	...	...	...	...	...	...	...
	The Indian Coal-fields (excepting Umaria, Bikaner, and Sor Range).	92,898	70	1.04	0.14	0.753	1.01	0.12	0.747
CORUNDUM	Madras . .	232	Nil	Nil	Nil	Nil	Nil	Nil	Nil
GEMS—DIAMONDS	Madras . .	110	2	25.00	Nil	18.18	...	...	...
RUBIES, SAPPHIRES, AND SPINELS	Upper Burma . .	1,787	5	3.44	1.60	2.80	...	...	...
GOLD.	Madras, Upper Burma, and Hyderabad.*	420	Nil	Nil	Nil	Nil	4.25	Nil	2.28
GRAPHITE.	Madras . .	80	Nil	Nil	Nil	Nil	Nil	Nil	Nil
LIMESTONE.	Central Provinces . .	338	Nil	Nil	Nil	Nil	...	...	...
MAGNESITE.	Madras . .	12	Nil	Nil	Nil	Nil	Nil	Nil	Nil
MANGANESE ORE.	Madras and Central Provinces.	4,230	1	Nil	0.77	0.24	Nil	Nil	Nil
MICA. .	Bengal . .	6,254	2	0.51	Nil	0.32	2.11	Nil	1.30
	Malras . .	2,965	16	8.65	Nil	5.39	0.78	Nil	.24
	TOTAL . .	9,219	18	3.10	Nil	1.95	1.74	Nil	0.84
SALT. .	Punjab . .	1,601	3	2.05	Nil	1.87	0.77	Nil	0.69
SLATE.	Bengal and Punjab	778	3	8.13	Nil	3.86	...	...	...
STEATITE.	Burma . .	...	...	...	...	...	...	...	...
TIN ORE. .	Lower Burma . .	...	...	...	...	...	...	...	...

* Not under the Indian Mines Act.

The death-rates, per 1,000,000 tons of coal raised and the number of tons raised per life lost for (1) Underground, (2) Underground and Surface workers, are given for the years 1900 and 1901 on Table No. 27.

For mines and quarries in India (excepting the Bikaner, Umaria, and Sor Range coal-fields), the death-rates for 1901 are 9·90 and 10·50, and for 1900, 10·44 and 10·94, respectively. The record for Daltongunge, Thingadaw (Burma), and Dandot (Punjab) coal-fields is nil and the others are as follows :—for Jherria 2·48, Warora 6·73, Raneegunge 9·89, Giridih 11·57, Mohpani 23·23, Singareni (Hyderabad) 28·49, Makum (Assam) 31·60, and Khost (Baluchistan) 325·53 deaths per 1,000,000 tons of coal raised by surface and under-ground workers. Raneegunge records an improvement of 4·15 deaths compared with 1900, but the other large coal-fields have not as good a record for 1901 as for 1900.

In Indian coal-fields (excepting Bikaner, Umaria, and Sor Range), 101,036 tons were raised per life lost of underground workers, and 95,262 tons for each death of underground and surface labourers. Daltongunge, Thingadaw and Dandot register ∞, and, of the others, Jherria heads the list with 415,231 tons, and Khost is last with 3,072 tons raised per life lost of underground and surface workers.

TABLE No. 27.

Death-rates per 1,000,000 tons of Coal raised, and number of tons raised per life lost, during 1900 and 1901 ; arranged according to Provinces and Coal-fields.

Mineral wrought.	Province and Field.	Output of coal during 1901.	Number of deaths during 1901.	DEATH-RATE PER 1,000,000 TONS OF COAL RAISED.				NUMBER OF TONS RAISED PER LIFE LOST.			
				DURING 1901.		DURING THE PRECEDING YEAR.		DURING 1901.		DURING THE PRECEDING YEAR.	
				Under ground.	Under and above ground.	Under ground.	Under and above ground.	Under ground.	Under and above ground.	Under ground.	Under and above ground.
Coal .	Assam— Makum . . .	253,162	8	31·60	31·60	23·07	23·07	31,645	31,645	43,347	43,347
	Baluchistan— Khost . . .	18,431	6	325·53	325·53	166·09	166·09	3,072	3,072	6,020	6,020
	Bengal— Daling . . .	<i>Nil</i>	<i>Nil</i>	<i>Nil</i>	<i>Nil</i>	<i>Nil</i>	<i>Nil</i>	∞	∞	∞	∞
	Daltongunge . . .	3,881	<i>Nil</i>	<i>Nil</i>	<i>Nil</i>	<i>Nil</i>	<i>Nil</i>	∞	∞	∞	∞
	Giridih . . .	691,745	8	11·57	11·57	5·61	5·61	86,468	86,468	178,182	178,182
	Jherria . . .	2,076,155	5	1·93	2·41	1·17	1·77	519,039	415,231	849,636	566,424
	Raneegunge . . .	2,932,095	29	9·21	9·89	14·04	14·43	108,596	101,106	71,230	69,305
	TOTAL . . .	5,703,876	42	6·84	7·36	8·44	8·84	146,253	135,806	118,535	113,147
	Burma— Thingadaw . . .	12,466	<i>Nil</i>	<i>Nil</i>	<i>Nil</i>	97·77	97·77	∞	∞	10,228	10,228
	Central India— Umaria . . .	...	...	...	...	...	...	...	...	...	...
	Central Provinces— Mohpani . . .	43,046	1	<i>Nil</i>	23·23	25·24	25·24	∞	43,046	39,612	39,612
	Warora . . .	148,470	1	6·73	6·73	<i>Nil</i>	<i>Nil</i>	148,470	148,470	∞	∞
	TOTAL . . .	191,516	2	5·22	10·44	5·78	5·78	191,516	95,758	172,842	172,842
	Hyderabad— Singareni . . .	421,218	12	28·49	28·49	17·05	19·18	35,101	35,101	58,661	52,143
	Punjab— Dandot . . .	67,730	<i>Nil</i>	<i>Nil</i>	<i>Nil</i>	27·00	27·00	∞	∞	37,041	37,041
	Rajputana— Bikaner . . .	...	...	...	...	...	...	...	...	...	...
	The Indian Coal-fields excepting Umaria, Bikaner, and Sor Range.	6,668,399	70	9·90	10·50	10·44	10·94	101,036	95,262	95,802	91,381

Mysore.

The Kolar Goldfield employed 25,060 persons: 14,221 were underground, and 10,839 on the surface. The number of deaths were 61 underground, and 15 aboveground. The death-rates per 1,000 persons employed are 4·29 for underground, 1·38 for surface, and 3·03 for surface and underground workers.

Section IV.—Prosecutions.

There were no prosecutions under the Mines Act during 1901. A clause specifies that proceedings shall not be instituted within one year from the date of commencement of the Act : the latter was passed on 22nd March 1901.

Section V.—General Remarks.

Plague Rules.

On 9th August 1901, the Sanitary Commissioner was asked for some simple plague rules for the guidance of Mine Managers. A set of rules for zemindars, and managers of mines and mills, was forwarded by the Secretary to Bengal Government on 15th November, and have been sent to the various managers of collieries: additional copies can be obtained on application to the Chief Inspector of Mines.

Mechanical Coal-cutters.

Jeffrey's electric coal-cutter was tried at the Salanpore Colliery for a few months, but was not successful chiefly on account of the difficulty of repair and removal of the machine. A cutter (divisible into three parts) and a nicker are being made by the Jeffrey Company, and are expected to be in operation at the East Indian Railway collieries about September 1902. It is not expected that there will be any saving in the cost of driving, but a number of working places will be quickly made ready for coal-cutters.

Legislation.

The Indian Mines Act, VIII of 1901, which affects British India only, came into force on the 22nd March 1901. Mining Boards were not formed during the year, but, in Bengal and Madras, Officers were appointed to decide appeals against the orders of the Inspectors. Definite orders were only issued in one case, and it is a pleasure to record the general readiness with which Managers of the Mines in Bengal have carried out the suggestions made by the Inspectors.

A Form, for notice to the Chief Inspector of the commencement of mining operations under Section 16, was gazetted on 1st August 1901, and a rule for reporting serious (including "fatal") accidents to the Chief Inspector through the District Magistrate was published by the Government of India on 27th December 1901.

Office work.

Mr. Grundy was absent on sick leave during the whole year.

Mr. Reader officiated as Inspector of Mines from the beginning of the year till 12th March 1901, when he died of cholera in Madras. Mr. Stonier took charge and was appointed to be Provisional Chief Inspector on 26th April 1901: he was gazetted as Chief Inspector, and a Bureau of Mines Inspection was formed, on 7th January 1902. Mr. Simpson, who joined the Geological Survey of India as Mining Specialist on 7th November, was deputed to assist the Chief Inspector, and from the 27th November to the 31st December 1901, inspected Native Collieries in the RaneeGUNGE Coal-field.

The tours were almost entirely confined to Bengal, and occupied 178 days, of which 129 were spent in inspecting mines and investigating accidents: in all 140, separate underground and surface inspections were made, and enquiries were held into 48 accidents: 28 reports of accidents were sent by the Government of Bengal to the Bengal Chamber of Commerce, Indian Mining Association, and district officers for distribution to Mine Managers.

Mr. G. F. Adams, one of His Majesty's Assistant Inspectors of Mines in Wales, was appointed to be an Inspector of Mines in India on 11th April 1902.

CALCUTTA:
The 15th April 1902.

GEO. A. STONIER,
Chief Inspector of Mines in India.

I.

Statement of Mines in British India open during any part of the year ending 31st December 1901.

Name of Mine.	Name of Owner or Company.	Situation. (Village, District, and Province.)	Mineral wrought.	Moving power used.	TOTAL OUTPUT OF THE YEAR.			AVERAGE NUMBER OF PERSONS EMPLOYED DAILY.						Total num- ber of persons em- ployed.	Number of accidents causing death, with the number of persons killed.	
					Coal.	Coke.	ABOVE GROUND.			BELOW GROUND.						
							Men.	Women.	Children (under 12).	Total.	Men.	Women.	Children (under 12).			Total.
BENGAL.																
JHERRIA COAL-FIELD.																
		<i>Mandhum, Bengal.</i>			Tons. 175,410	Tons. 3,476	367	151	16	534	1,028	767	...	1,795	2,329	2 accidents, 2 deaths.
Alkusa Kustore & Kiskariganj Coal Association, Ltd.		Alkusa	Coal	Steam												
Angapatra	Angapatra Coal Co.	Angapatra	Do.	Manual	18,371	725	40	100	...	140	60	20	...	80	220	
Do.	Jogendra Nath Stimani	Do.	Do.	Do.	4,800	200	20	20	5	45	40	40	...	80	125	
Do.	Triguait Bros.	Do.	Do.	Do.	25,870	1,070	64	48	...	112	90	74	...	164	276	
Do. & Kantapaharee	J. C. Lose	Do.	Do.	Do.	16,572	1,070	25	15	20	60	100	70	10	180	240	Nil.
Do.	South Angapatra Coal Co.	Do.	Do.	Do.	...	...	2	1	...	3	8	4	...	12	15	
Bagdegee	Charles Smith, Esq.	Bagdegee	Do.	Steam	34,648	1,852	60	25	30	115	150	50	...	200	315	
Bansjora	Agabeg Bros.	Bansjora	Do.	...	...	...	3	2	...	5	...	...	...	...	5	
Barhemunbarraree and Bholunbarraree.	East India Coal Co.	Barhemunbarraree	Do.	Do.	86,125	3,235	200	90	60	350	600	120	80	800	1,150	1 death.
Barari	Liak and Banarjee	Bholunbarraree	Do.	Manual	12,000	600	15	15	...	30	15	10	...	25	55	
Bansdeopoor	Bansdeopoor Coal Co.	Bansdeopoor	Do.	...	11,970	...	25	15	...	40	50	40	...	90	130	
Do.	East India Coal Co.	Do.	Do.	...	...	...	6	16	...	22	12	...	...	12	34	
Benabir	Standard Coal Co., Ltd.	Jherria khas	Do.	Steam	26,553	1,250	50	50	15	115	120	100	...	220	335	
Bhaga	Jherria Colliery Co., Ltd.	Bhaga	Do.	Do.	29,958	432	160	30	8	198	150	12	...	762	360	Nil.
Bhagaband	Laik Coal Co.	Bhagaband	Do.	Manual	1,000	...	6	2	1	9	4	8	...	12	21	
Do.	G. Carrapet, Esq.	Do.	Do.	...	200	...	1	1	...	2	2	1	1	4	6	
Bhalgora	Messrs. Sircar and Barnard.	Jherria khas	Do.	Steam	34,889	1,472	122	70	4	196	110	69	5	184	380	
Bhowra	Messrs. Mackinnon and Co.	Bhowra	Do.	Do.	6,010	...	20	10	6	36	50	30	...	80	116	

{ 2 accidents,
2 deaths.

Nil.

1 death.

Nil.

Colony	Company	Capital	Revenue	Profit	Dividend	Interest	Other	Assets	Liabilities	Net Worth	Employees	Output	Value	Notes
Bugutdee	Bengal Nagpur Coal Co.	2,840	380	150	...	530	400	200	...	600	1,130			
Bulliarce	Chooni Lal Coal Co.	...	5	2	...	7	7	3	...	10	17			
Do.	Khararam Kachi	...	6	7	...	13	4	5	...	9	22			
Do.	Kanji Khengar	350	...	...	...	...	14	10	...	24	24			
Do.	Karman Wasta	150	...	...	...	...	16	12	...	28	28			
Burrugurh	Kanga and Co.	...	60	20	...	80	20	25	...	45	125			
Do.	Amulya Nath Ray	159	3	2	1	6	24	16	...	40	46			
Busserya	Bhola Nath Dass	205	140	30	50	220	160	170	...	330	550			
Chandore	Beni Pain	...	3	...	...	3	3	4	...	7	10			
Do.	Bhubonaswar Trigunait	...	3	2	...	5	6	2	...	8	13			
Do.	Braro Bhunsan Trigunait	...	12	7	...	19	6	...	...	6	25			
Do.	Chandore Coal Co.	...	6	2	...	8	6	4	...	10	18			
Do.	Mukleswar and Shib Chunder Trigunait and Nanda Lal Mukerjee.	...	5	3	...	8	10	5	...	15	23			
Do.	National Coal Co.	...	6	2	1	9	4	3	...	7	16			
Chakpad	Sudarsan Trigunait	...	5	3	...	8	10	8	...	18	26			
Chasnula	Bengal Coal Syndicate	...	...	...	...	...	350	200	50	600	600			
Cheetooddeh	Lutchipur Coal Co.	3,182	97	45	27	169	137	88	17	242	411			
Dobari	Kurum Brothers	...	...	...	...	...	5	3	...	8	8			
Do.	Dobari Coal Co.	...	5	3	...	8	5	3	...	8	16			
Do.	Rajendra Naran Bageli	...	75	80	...	155	90	125	...	215	370			
Durgapur	Shampur Coal Co.	204	...	...	...	...	75	45	5	125	125			
Ekra	Maharaja Monindro Chandra Nundy.	1,983	22	30	8	60	60	75	...	135	195			
Emampahary	Jherria Coal Syndicate	...	...	...	...	...	40	30	...	70	70			
Futtehpoor	P. D. Hamir and Co.	1,048	...	...	...	...	46	34	...	80	80			
Do.	Gangji and Khunjee Dosa	1,217	20	15	...	35	30	20	...	50	85			
Ganzlatar	New Manbhum Coal Co.	054	50	20	20	90	100	30	...	130	220			

STATEMENT I--(contd.)

Name of Mine.	Name of Owner or Company.	Situation. (Village, District, and Province).	Mineral wrought.	Moving power used.	TOTAL OUTPUT OF THE YEAR.		AVERAGE NUMBER OF PERSONS EMPLOYED DAILY.								Total number of persons employed.	Number of accidents causing death, with the number of persons killed.
					Coal.	Coke.	ABOVE GROUND.			BELOW GROUND.						
							Men.	Women.	Children (under 12).	Total.	Men.	Women.	Children (under 12).	Total.		
Ganzlatar	Dekhineswar Maliah	Mandhum, Bengal. Ganzlatar	Coal	Manual	Tons. 3,730	Tons. ...	6	...	...	6	22	14	...	36	42	Nil.
Garba	Maheshwar Roy	Garba	Do.	Do.	370	...	...	...	...	4	2	...	...	6	6	
Do.	Trebuscon Das Howjee	Do.	Do.	Do.	262	...	11	4	...	15	2	2	...	4	19	
Do.	Do. Reras Sankar	Do.	Do.	Do.	220	...	7	2	...	9	4	1	...	5	14	
Do.	Ramjee Bechu Das	Do.	Do.	Do.	256	...	4	1	...	5	2	1	...	3	8	1 Death
Godhur	Messrs. Mylne and Co.	Do.	Do.	Do.	38,684	13	18	14	...	32	104	91	...	195	227	
Golukdi	Atlas Coal Co., Ltd.	Teesrah	Do.	Steam	39,635	2,249	300	150	50	500	275	50	25	350	850	
Gopalee Chuk	Gopalee Chuk Coal Co.	Gopalee Chuk	Do.	Do.	89,838	1,440	190	62	25	277	408	265	...	673	950		Nil.
Gundooddeh	Raneegunge Coal Association	Gundooddeh	Do.	Manual	19,275	...	30	6	...	36	151	120	...	271	307	
Do.	Shoshi Banerjee & Co.	Do.	Do.	Do.	3,000	2,000	15	10	...	25	6	5	...	11	36	
Het Kandra	Gobind Base	Het Kandra	Do.	Do.	1,085	...	...	...	...	...	4	9	...	13	13	1 Death.
Do.	Goa & Pasu	Do.	Do.	Do.	...	...	...	...	...	...	3	2	...	5	5	
Hurriladeeh	Standard Coal Co., Ltd.	Hurriladeeh	Do.	Do.	3,659	...	10	...	5	15	40	25	...	65	80	
Do.	Hurriladeeh Coal Co., Ltd.	Do.	Do.	...	1,701	...	2	1	...	3	5	4	...	9	12		Nil.
Jayrampur	R. D. Mohita, Esq.	Jayrampur	Do.	Do.	22,531	439	55	40	10	105	...	...	...	...	105	
Jeenagura	Munji Munji	Jeenagura	Do.	Do.	40	...	...	...	...	...	1	1	...	2	2	
Do.	Natho Loda	Do.	Do.	Do.	50	...	...	...	...	...	1	2	...	3	3	
Do.	Gua, Petia and Co.	Do.	Do.	Do.	60	...	...	...	...	...	13	10	...	23	72	153
Jherria Khas	Bhoja Dianjee Brothers	Jherria Khas	Do.	Do.	15,893	287	27	22	...	49	72	65	...	137		
Do.	Pudley Coal Co.	Do.	Do.	...	17,165	775	11	5	...	16	72	65	...	137		

Nil.

1 Death

Nil.

1 Death.

Nil.

STATEMENT I—(cont d.)

Name of Mine.	Name of Owner or Company.	Situation. (Village, District and Province.)	Mineral wrought.	Moving power used.	TOTAL OUTPUT OF THE YEAR.		AVERAGE NUMBER OF PERSONS EMPLOYED DAILY.						Total number of persons employed.	Number of accidents causing death with the number of persons killed.	
					Coal.	Coke.	ABOVE GROUND.			BELOW GROUND.					
							Men.	Women.	Children (under 12).	Total.	Men.	Women.			Children (under 12).	Total.
Lakhi . . .	North Barakar Coal Co. .	<i>Mandbhat, Bengal.</i> Lodhna . .	Coal .	Manual	Tons. 17,166	Tons. 679	25	16	15	56	85	25	...	110	166
Lakorka . . .	Lakorka Coal Co., Ltd. .	Lakorka . .	Do. .	Steam	24,532	1,739	108	45	17	170	158	89	...	247	417
Lodhna . . .	Lodhna Coal Co., Ltd. .	Lodhna . .	Do. .	Do.	95,182	5,533	294	123	74	491	709	579	164	1,452	1,943
Loyabad . . .	Barakar Coal Co., Ltd. .	Loyabad . .	Do. .	Do.	68,180	10,367	365	122	30	517	310	220	10	540	1,057
Modeedeeh . . .	Barakar Coal Co., Ltd. .	Modeedeeh . .	Do. .	Do.	48,218	1,872	200	150	...	350	600	250	...	850	1,200
Nayadi . . .	Chunder Lal Nogen Das	Nayadi . .	Do. .	Do.	3,000	...	5	...	...	5	10	5	...	15	20
Pandaybera . . .	Banamali Kaviraj . .	Kujama . .	Do. .	Manual	4,005	400	15	5	...	20	25	20	...	45	65
Do.	Dya Sankar Debrani . .	Do. . . .	Do. .	Do.	500	...	6	2	...	8	7	2	...	9	17
Pandedih . . .	Jherria Coal Association	Paradi . .	Do. .	Do.	405	...	1	1	...	2	2	1	...	3	5
Do	Jorabar Singh . . .	Do. . . .	Do. .	Do.	26	...	2	1	...	3	1	1	...	2	5
Do.	Suresh Chunder Gangooly	Do. . . .	Do. .	Do.	383	25	1	1	...	2	2	2	...	2	4
Do.	Unesh Chunder Bhattachar- ji.	Do. . . .	Do. .	Do.	60	...	1	1	...	2	2	1	...	3	5
Parthadihi . . .	A. McLeod & Co. . .	Sudamdeeh . .	Do. .	Do.	4,537	...	...	...	...	...	24	23	6	53	53
Do.	Marine Coal Co., Ltd. . .	Sootmkdeeh . .	Do. .	Do.	3,775	...	...	...	...	...	37	31	8	76	76
Do.	Parthadihi Coal Co. (T. P. Roy).	...	Do. .	Do.	...	...	...	...	...	...	7	5	...	12	12
Phularibad . . .	Jadobi Lal Banarjee . .	Jherria Khas . .	Do. .	Do.	3,976	50	3	2	...	5	6	12	...	18	23
Ramkanali . . .	Brojo Bhusan Trigunait	Ramkanali . .	Do. .	Do.	450	...	15	3	...	18	18	8	...	26	44
Do.	Profulla Koomar Biswas	Do. . . .	Do. .	Do.	245	...	1	1	...	2	3	2	...	5	7
Sendra	Roy Srinath Pal . . .	Sendra . .	Do. .	Do.	25,300	1,000	70	75	25	170	265	100	5	370	540
Sejoah	Finlay, Muir and Co. . .	Sejoah . .	Do. .	Steam	91,100	5,700	217	135	28	380	481	300	17	798	1,178
Simlabahal . . .	Dudley Coal Co., Ltd. . .	Jherria Khas . .	Do. .	Do.	17,467	332	9	3	...	12	59	55	...	114	126

Nil.

STATEMENT I--contd.

Name of Mine.	Name of Owner or Company.	Situation. (Village, District, and Province.)	Mineral wrought.	Moving power used.	TOTAL OUTPUT OF THE YEAR.		AVERAGE NUMBER OF PERSONS EMPLOYED DAILY.								Total number of persons employed.	Number of accidents causing death with the number of persons killed.
					Coal.	Coke.	ABOVE GROUND.				BELOW GROUND.					
							Men.	Women.	Children (under 12).	Total.	Men.	Women.	Children (under 12).	Total.		

RANERGUNGE COAL-FIELD—contd.																
		<i>Bengal.</i>			Tons.		Tons.									
Bargo	Nepal Mondal	Bargo, Sonthal Parganas.	Coal	Manual	4	...	...	...	...	1	...	...	...	...	1	1
Begunia	G. C. Dey	Begunia, Burdwan	Do.	Steam	300	...	...	4	...	10	5	...	...	...	15	19
Do.	Maharaja M. C. Nandi	Do., do.	Do.	Do.	18,075	...	...	16	...	69	26	...	...	...	95	129
Do.	J. N. Mukerjee	Do., do.	Do.	Do.	9,703	...	...	7	...	75	45	...	...	...	120	152
Do.	J. Scorer, Esq.	Do., do.	Do.	Do.	6,014	54	...	1	...	33	19	4	...	...	56	63
Do.	N. L. Gorai	Do., do.	Do.	Do.	18,734	...	...	15	...	70	30	...	...	...	100	150
Do.	Laik and Co.	Do., do.	Do.	Do.	3,340	...	...	4	2	20	15	...	...	...	35	45
Belrui	New Beerbhun Coal Co., Ltd.	Belrui, do.	Do.	Do.	43,042	...	...	70	...	118	51	21	...	...	190	348
Bhuskajuree	Burrakar Coal Co., Ltd.	Bhuskajuree, do.	Do.	Do.	Nil.	Nil.	...	50	10	55	...	5	...	...	60	270
Bhooldobia	Bagherati Coal Co.	Kaliphari, do.	Do.	Do.	3,250	...	...	15	...	40	10	...	...	...	50	75
Bora Chuk	Apear and Co.	Bora Chuk, do.	Do.	Do.	4,932	2,730	...	35	9	18	20	8	...	...	46	171
Borrea and Lalbazar	New Beerbhun Coal Co., Ltd.	Borrea, do.	Do.	Do.	163,449	3,355	...	323	33	570	215	23	...	...	808	1,594
Bunbehal	Jagonath Marvari	Bunbehal, do.	Do.	Do.	2,358	...	...	16	8	28	20	...	...	...	48	80
Chanch	Bengal Coal Co., Ltd.	Chanch, Manbhum	Do.	Do.	41,747	853	...	112	...	439	68	...	...	...	557	901
Chaprapur	I. C. Dutta	Chapra, do.	Do.	Do.	800	...	...	...	...	5	3	...	...	...	8	8
Chaptorah	I. C. Kundu	Chaptorah, Burdwan.	Do.	Do.	3,869	878	...	27	4	36	45	...	...	...	81	137
Charanpur	Apear and Co.	Domolani, do.	Do.	Do.	23,002	...	...	75	11	101	32	3	...	...	136	301
Do.	Reliance Coal Co., Ltd.	Do., do.	Do.	Do.	35,388	...	...	52	12	255	105	18	...	...	978	527
Do.	S. B. Mukerjee	Do., do.	Do.	Do.	4,000	...	...	7	2	20	4	...	...	...	24	45

Chora	Ondal Coal Co.	Chora,	do.	do.	66,962	...	55	40	...	95	150	25	...	175	270
Chota Dhenio	Baman Das Mukerjee	Chota Dhenio,	do.	do.	32,472	...	80	30	16	126	95	54	20	169	295
Do.	R. B. Chatterjee	Do.,	do.	do.	50,869	425	50	42	16	108	182	52	26	260	363
Do.	Laik and Co.	Do.,	do.	do.	29,504	...	100	35	10	145	150	15	...	165	310
Chotapathar	Kamola Coal Co.	Asansol,	do.	do.	13,740	...	12	38	...	50	80	41	...	121	171
Do.	R. B. Mukerjee	Do.,	do.	do.	1,200	...	15	12	10	37	12	27	...	39	76
Do.	S. C. Mukerjee	Do.,	do.	do.	785	...	1	2	...	3	10	12	...	22	25
Damra	R. B. Chatterjee	Damra,	do.	do.	3,791	7,488	22	38	...	60	94	7	...	101	161
Damudapur	Bengal Coal Co., Ltd.	Damudapur,	do.	do.	8,742	...	60	39	...	99	86	5	...	41	140
Dishergarh	Equitable Coal Co., Ltd.	Dishergarh,	do.	do.	210,895	...	228	127	27	382	2,115	570	108	2,793	3,175
Dhadka	New Beerbhum Coal Co., Ltd.	Dhadka,	do.	do.	46,094	...	100	100	100	300	250	150	...	400	700
Dhasal	Sidheswari Coal Co.	Dhasal,	do.	do.	12,463	...	29	16	...	45	45	37	...	82	127
Dhoondabad	New Manbhum Coal Co.	Dhoondabad,	do.	do.	36,506	...	125	50	2	177	260	75	...	335	512
Dobrana	Lardner Bros.	Dobrana,	do.	do.	4,481	...	10	37	2	49	25	12	...	37	86
Do.	Peary Lal Daw	Do.,	do.	do.	2,794	...	5	28	2	35	25	10	...	35	70
Domanpur	Girish Chunder Dey	Domanpur, Son- thal Farganas.	Do.	Manual	148	...	...	...	...	...	4	2	...	6	6
Do. Bhalki	Kesub Chunder Dey	Do.,	do.	do.	129	...	...	...	...	...	4	3	...	7	7
Dubanea	Bankura Coal Co.	Kalipahari, Burd- wan.	Do.	Steam.	5,301	...	9	11	...	20	43	12	...	55	75
Egarcoor	Ahmed Yusuf	Egarcoor, Man- bhum.	Do.	Do.	1,656	2,696	1	1	...	2	25	7	...	32	34
Do.	Chhagan Lal Kachi and Co.	Do.	do.	do.	788	1,343	6	7	...	13	9	3	...	12	25
Do.	Jagol Kishor Dey	Do.,	do.	do.	82	...	...	...	...	...	1	5	...	6	6
Do.	Laik Sons and Co.	Do.,	do.	do.	100	333	2	2	...	4	1	1	...	2	6
Do.	Unesh Chunder Bhat- tachee and Co.	Do.,	do.	do.	600	1,200	3	5	...	8	15	4	...	19	27
Faridpur	Apar and Co.	Domohani, Burd- wan.	Do.	Do.	16,063	...	25	25	4	54	34	10	...	44	98
Filgate	Bengal Iron and Steel Co., Ltd.	Kendwah,	do.	do.	34,714	492	15	...	...	15	156	79	...	235	250
Gangutia	Bengal Nagpur Coal Co., Ltd.	Gangutia,	do.	do.	40,829	...	45	8	20	73	300	150	...	450	523
Garphalbaree	Burrakar Brick and Tile Syn- dicate.	Garphalbaree, Manbhum.	Do.	Do.	4,600	400	3	2	...	5	18	12	...	30	35

{ 2 Accidents,
2 Deaths.
Nil.

STATEMENT I—contd.

Name of Mine.	Name of Owner or Company.	Situation. (Village, District, and Province).	Mineral wrought.	Moving power used.	TOTAL OUTPUT OF THE YEAR.		AVERAGE NUMBER OF PERSONS EMPLOYED DAILY.						Total number of persons employed.	Number of accidents causing death with the num- ber of persons killed.
					Coal.	Coke.	ABOVE GROUND.			BELOW GROUND.				
							Men.	Women.	Children (under 12.)	Total.	Men.	Women.			Children (under 12.)	Total.

RANEGUNGE COAL-FIELD—contd.															
Ghat Chora	Kesub Chunder Dey	Bengal. Ghat Chora, Son- thal Parganas.	Coal	Steam	Tons. 15	...	...	...	...	...	2	1	...	3	Nil.
Ghoosic	Baliram Coal Co.	Ghoosic, Burd- wan.	Do.	Do.	8,025	...	12	9	...	21	60	18	...	78	
Do.	Damuda Do.	Do.	Do.	Do.	11,835	...	25	31	9	65	89	87	...	176	
Do.	Ghusick Coal Co.	Do.	Do.	Do.	1,200	...	2	9	2	13	17	2	...	19	
Do.	Katchka Coal Co.	Do.	Do.	Do.	9,532	...	24	21	...	45	49	19	...	68	
Do.	S. T. Greet	Do.	Do.	Do.	55,078	...	50	100	25	175	375	185	70	630	805
Gopinathpur	West Burrakar Coal Co., Ltd.	Gopinathpur, Manbhum.	Do.	Do.	2,120	251	3	2	1	6	20	5	2	27	33
Gopalpur	Damuda Coal Co., Ltd.	Gopalpur, Burd- wan.	Do.	Do.	8,770	...	19	6	...	25	49	45	...	94	119
Gourangdi	Burrakar Coal Co., Ltd.	Gourangdi, do.	Do.	Do.	70,333	...	450	200	...	650	300	156	...	456	1,106
Haripur	Tareni Coal Co.	Haripur, do.	Do.	Do.	9,306	...	6	10	...	16	75	35	...	110	126
Do.	Ambler, Barnard and Co.	Do.	Do.	Do.	450	...	30	28	2	60	12	8	2	22	82
Do.	Messrs. Sircar and Barnard	Do.	Do.	Do.	12,414	...	4	10	...	14	70	174	...	244	258
Jairamdanga	New Beerbhum Coal Co., Ltd.	Jairamdanga, do.	Do.	Do.	50,069	...	42	26	...	68	191	52	18	261	329
Jamgram	Burrakar Coal Co., Ltd.	Jamgram, do.	Do.	Do.	21,016	...	250	50	...	300	200	50	...	250	550
Jamuria	Equitable Coal Co., Ltd.	Jamuria, do.	Do.	Do.	70,395	...	150	89	20	259	988	380	87	1,455	{ 1 Accident, 2 Deaths.
Jemari	K. D. and R. Maliah	Jemari, do.	Do.	Do.	44,520	...	50	60	21	131	306	40	...	346	477
Jorjanaki	Singaran Coal Syndicate	Jorjanaki, do.	Do.	Do.	29,729	...	100	60	20	180	140	40	10	190	370
Jouranachak	Bholanath Chatterjee	Jouranachak, do	Do.	Do.	7,200	...	45	25	6	76	50	12	8	70	146
Kajra	Ram Lal	Kajra, do.	Do.	Do.	2,760	...	4	2	...	6	16	2	...	18	24
Kalikapur	M. N. Banerjee and Bros.	Kalikapur, Ban- kura.	Do.	Do.	8,320	...	5	...	...	5	75	20	...	95	100
Kalimati	Bonwari Lal Roy and Co.	Kalimati, Man- bhum.	Do.	Do.	1,400	...	...	...	...	...	22	8	...	30	30

[illegible]

STATEMENT I—contd.

Name of Mine.	Name of Owner or Company.	Situation. (Village, District, and Province.)	Moving power used.	TOTAL OUTPUT OF THE YEAR.		AVERAGE NUMBER OF PERSONS EMPLOYED DAILY.										Total number of persons employed.	Number of accidents causing death with the number of persons killed
				Coal.	Coke.	ABOVE GROUND.					BELOW GROUND.						
						Men.	Women.	Children (under 12).	Total.	Men.	Women.	Children (under 12).	Total.				
RANEENGUNGE COAL-FIELD—concl'd.																	
Mouthdi . . .	Mouthdi Coal Co. . .	Bengal. Mouthdi, Burdwan	Manual	7,669	...	20	20	5	45	30	20	5	55	100	1 Death.		
Mugma . . .	Bengal Imperial Coal Co. . .	Mugma, Man- bhumi.	Do. .	...	...	3	6	...	9	5	...	...	5	14	Nil.		
Do. . .	Mangobind Chaud . . .	Do., do. .	Do. .	900	...	...	...	...	...	10	10	...	20	20			
Do. . .	Mugma Coal Association . . .	Do., do. .	Steam .	938	3,062	35	15	...	50	20	20	...	40	90			
Nandi . . .	Nandi Coal Co. . .	Nandi, Burdwan	Do. .	15,000	...	55	30	6	91	125	42	...	167	258			
Do. . .	Do. Do. Association . . .	Do., do. .	Do. .	3,380	...	12	8	...	20	20	10	...	30	50	1 Death.		
Do. . .	S. B. Mukerjee . . .	Do., do. .	Do. .	1,650	...	5	4	2	11	16	3	...	19	30			
Nandi Rajpur . . .	Adjai Coal Co., . . .	Nandi Rajpur, do. .	Do. .	62,946	...	130	40	10	180	375	50	5	430	610			
Napara . . .	B. L. Mukerjee . . .	Napara, do. .	Do. .	6,664	...	6	13	...	19	38	28	...	66	85			
Narsamunda . . .	Sitarampur Coal Co., Ltd. . .	Narsamunda, do. .	Do. .	22,221	...	100	30	6	136	127	45	...	172	308	Nil.		
New Damra . . .	Biraj Mohini Daby . . .	Damra, do. .	Do. .	11,759	2,267	20	15	...	35	150	6	...	156	191			
Nimcha . . .	Bengal Coal Co., Ltd. . .	Nimcha, do. .	Do. .	13,577	...	39	13	...	52	77	5	2	84	136			
Niga Valley . . .	S. B. Mukerjee . . .	Kalpahari, do. .	Do. .	1,125	...	6	4	3	13	11	8	...	19	32			
North Ghusic . . .	Indian Coal Co. . .	Ghusic, do. .	Do. .	6,622	...	11	11	...	22	37	23	...	60	82	1 Death.		
Nunniapool . . .	Myer and Co. . .	Kalpahari, do. .	Do. .	577	...	6	4	...	10	3	2	...	5	15	Nil.		
Palasthal . . .	Ram Chandra Sadhu . . .	Jamtora, Sonthal Parganas.	Manual	600	...	...	2	...	2	10	6	...	16	18			
Panchgutiya . . .	Luchipore Coal Co., Ltd. . .	Panchgutiya, Burdwan.	Steam .	57	...	253	90	15	358	51	...	...	51	409	1 Death.		
Patlabari . . .	Reliance Coal Co., Ltd. . .	Patlabari, Man- bhumi.	Do. .	27,521	...	50	50	...	100	125	75	...	200	300	Nil.		
Pretoria . . .	Jherria-Katras Coal Co., Ltd. . .	Seebpore, Burd- wan.	Do. .	13,886	...	20	10	...	30	103	9	...	112	142			
Purandilhi . . .	Raneengunge Coal Association, Ltd. .	Purandilhi, do. .	Do. .	10,989	...	20	10	...	30	109	15	...	124	154			
Ragunath Chak . . .	Jagunnath Marwari . . .	Ragunath Chak, do. .	Do. .	3,125	...	8	14	10	32	34	20	...	54	86			
Rajpura . . .	Burn and Co. . .	Rajpura, Mau- bhumi.	Do. .	4,242	..	6	4	2	12	24	16	...	40	52			

	No.	Name	Company	Do.	do.	Do.	1,000	960	1	1	...	2	6	...	6	12	14
Do.	.	K. L. Parek and Co.	.	Do.,	do.	Do.	1,000	960	1	1	...	2	6	...	6	12	14
Do.	.	Sambhu Nath Roy	.	Do.,	do.	Do.	400	1,400	3	6	...	9	18	...	6	24	33
Ranadanga	.	Apar and Co.	.	Domohani, Burdwan.	.	Do.	11,925	...	12	6	1	19	40	1	14	55	74
Raniganj	.	Bengal Coal Co., Ltd.	.	Egara,	do.	Do.	41,917	...	116	59	2	177	218	1	28	247	424
Sabanpur	.	B. S. Banerjee	.	Sabanpur,	do.	Do.	1,890	945	4	6	...	10	16	...	12	28	38
Salanpur	.	Borrea Coal Co., Ltd.	.	Salanpur,	do.	Do.	160,591	...	300	120	29	449	710	...	202	912	1,361
Sanctoria	.	Bengal Coal Co., Ltd.	.	Sanctoria,	do.	Do.	62,323	...	155	175	59	389	801	73	558	1,432	1,821
Sangamahat	.	Rama Nundo Roy	.	Sangamahat, Manbhumi.	Do.	Do.	1,250	...	4	2	...	6	8	...	6	14	20
Do.	.	Aghore Nath Seal	.	Do.,	do.	Do.	450	100	2	2	...	4	4	...	3	7	11
Sarsabad.	.	Girish C. Dey	.	Sarsabad, Sonthal Parganas.	Do.	Manual	111	...	...	...	...	...	3	2	...	5	5
Satpukuria	.	Kanga and Co.	.	Satpukuria, Burdwan.	Do.	Steam.	...	...	8	25	2	35	16	...	...	16	51
Do.	.	Satpukuria Coal Co.	.	Do.,	do.	Do.	5,451	...	25	10	3	38	35	7	...	47	85
Do.	.	Equitable Coal Co.	.	Do.,	do.	Do.	13,613	...	23	10	6	35	129	10	50	189	224
Searsol	.	K. D. and R. Maliah	.	Searsol,	do.	Do.	39,429	...	101	95	16	212	204	32	70	306	518
Seebpur	.	Jherria Katras Co.	.	Seebpur,	do.	Do.	84,216	...	78	70	...	148	463	...	96	559	707
Shamdihi	.	B. T. Hazra	.	Shamdihi,	do.	Do.	3,000	150	9	5	9	23	15	...	10	25	48
Shampur	.	S. B. Chatterjee and Co.	.	Shampur, Manbhumi.	Do.	Do.	3,700	1,421	10	42	...	52	40	...	6	46	98
Do.	.	Shampur Coal Co.	.	Do.,	do.	Do.	51,960	180	117	48	9	174	265	21	72	353	532
Sidheswari	.	S. B. Kundu	.	Do.,	do.	Do.	8,859	...	40	6	...	46	60	...	15	75	121
Sitalpur	.	Bengal Coal Co., Ltd.	.	Sitalpur, Burdwan	Do.	Do.	29,998	...	114	73	14	201	417	36	101	554	755
Sodepur	.	Do.,	do.	Sodepur,	do.	Do.	124,512	...	370	280	...	650	1,055	8	1,415	2,478	3,128
Sonachora.	.	Sahana and Co.	.	Sonachora,	do.	Manual	4,800	...	5	28	2	35	20	...	9	29	64
Sudihi	.	J. N. Ganguli	.	Sudihi,	do.	Steam.	2,692	...	4	2	...	6	20	...	15	35	41
Do	.	Navigation Coal Co.	.	...	Do.	Do.	34,708	...	60	20	...	80	109	...	22	131	211
Sultanpur	.		.	Sultanpur, Sonthal Parganas.	Do.	Manual	1,911	...	4	5	...	9	12	...	6	18	27
Sunderchak	.	Shampur Coal Co.	.	Sunderchak, Burdwan.	Do.	Steam.	10,874	...	51	87	4	142	140	...	8	143	290
Toposi	.	Raneegunge Coal Assn., Ltd.	.	Toposi,	do.	Do.	45,476	...	60	30	...	90	300	20	50	370	460
Vanorah	.	Maharaja M. C. Nandi	.	Vanorah,	do.	Do.	13,704	...	7	15	5	27	40	9	27	76	103
Total of the Raneegunge Coal-Field	.		.				2,870,237	37,115	7,837	4,983-5	763	13,583-5	18,949	730	7,934	27,613	41,196-5
																	24 Accidents, 29 Deaths.

STATEMENT I—contd.

Name of Mine.	Name of Owner or Company.	Situation. (Village, District, and Province).	Mineral wrought.	Moving power used.	TOTAL OUTPUT OF THE YEAR.		AVERAGE NUMBER OF PERSONS EMPLOYED DAILY.						Total number of persons employed.	Number of accidents causing death with the number of persons killed.
							ABOVE GROUND.			BELOW GROUND.				
					Coal.	Coke and Patent Fuel.	Men.	Women.	Children (under 12.)	Total.	Men.	Women.	Children (under 12.)	Total.

BENGAL—contd.

GIRIDIH COAL-FIELD.

		Tons.		Tons.											
Bariadih	Raneegunge Coal Assn., Ltd.	Bariadih, Hazaribagh, Bengal.	Coal	Steam	18,266	...	43	10	5	58	296	63	26	385	443
Do.	Babu Rakhai Das Jan	Do., Bengal.	Do.	Manual	4,005	...	12	10	2	24	29	8	...	37	61
Karharbari and Serampur.	E. I. Railway Co.	Karharbari, do.	Do.	Steam	*518,435	C. 24,921 P. F. 1,524	1,689	793	106	2,588	3,550	1,740	...	5,290	7,878
Kuldiha	Bengal Coal Co., Ltd.	Kuldiha, do.	Do.	Do.	99,004	...	415	119	25	559	985	237	62	1,284	1,813
Lakhararia or Bayra	E. Meyers, Esq.	Lakhararia, do.	Do.	Do.	8,800	...	70	35	15	120	210	95	25	330	450
Satighat	Gajadhar Roy and others	Satighat, do.	Do.	...	500	...	5	2	2	9	1	12	...	27	36
Total of the Giridih Coal-Field					649,010	C. 24,921 P. F. 1,524	2,234	969	155	3,358	5,085	2,155	113	7,353	10,711
															8 Accidents, 8 Deaths.

PALAMAU (DALTONGUNGGE) COAL-FIELD.

Rajahara	Bengal Coal Co., Ltd.	Palamau	Coal	...	3,881	...	144	67	11	222	94	83	...	177	399	Nil.
Total of the Palaman Coal-Field					3,881	...	144	67	11	222	94	83	...	177	399	Nil.
Gross Total of the Bengal Coal-Fields					5,441,713	Coke 156,578 P. F. 1,524	15,448	8,962	1,703	26,113	35,488	16,717	1,384	53,539	79,652	37 Accidents, 42 Deaths.

* 561,170 tons, including coke and patent fuel.

STATEMENT I--contd.

Name of Mine.	Name of Owner or Company.	Situation. (Village, District, and Province.)	Mineral wrought.	Moving power used.	TOTAL OUTPUT OF THE YEAR.	AVERAGE NUMBER OF PERSONS EMPLOYED DAILY.							Total number of persons employed.	Number of accidents causing death with the number of persons killed.	
						ABOVE GROUND.				BELOW GROUND.					
						Men.	Women.	Children (under 12.)	Total.	Men.	Women.	Children (under 12.)			Total.
BRITISH BALUCHISTAN.															
Khost Colliery .	North-Western State Railway	Khost, Thal-Choti-ali, Baluchistan.	Coal .	Steam and Hand.	Coal. Tons. 14,501	Patent fuel. Tons. 4,454	176	...	13	189.	272	...	..	272	

BURMA.

Letkakpin	Burma Coal Co., Ltd.	Shwebo, Sagaing, Upper Burma.	Coal	Steam	12,466 Tons.	Tons.	33	24	1	58	113	32	...	145	203	Nil.
Choukpazat	Choukpazat Gold Mining Co., Ltd.	Choukpazat, Katha, Upper Burma.	Gold	Do.	1,984	Ozs.	95	...	...	95	40	...	...	40	135	
Burma Ruby Mines	Burma Ruby Mines Co., Ltd.	Mogoke, Upper Burma.	Rubies Sapphires Spinels	...	210,784 9,786 10,241	carats " "	431	...	...	431	806	...	...	806	1,237	4 Accidents, 5 Deaths.
Bokpyin	Sit Sin	Bokpyin, Mergui and Ava, Burma	Tin	...	2 Tons.	cwt.	...	...	...	...	...	...	...	...	18	
Do.	Do.	Do.	Do.	...	2	15	...	...	...	...	...	...	...	...	15	
Do.	A. Tom	Do.	Do.	...	0	1	...	...	...	...	...	...	...	...	2	
Do.	Marof	Do.	Do.	...	0	5	...	...	...	...	...	...	...	...	13	
Chuang Kipra	Ba Din	Do.	Do.	...	0	16	...	...	...	...	...	...	...	...	5	
Do.	Khaik Dam	Do.	Do.	...	2	12	...	...	...	...	...	...	...	...	10	
Chuang Nam Jonk	Sitkai Kat	Do.	Do.	...	0	16	...	...	...	...	...	...	...	...	8	
Hau Kupin	A. Swa	Do.	Do.	...	0	5	...	...	...	...	...	...	...	...	15	
Do.	A. Swai	Do.	Do.	...	3	6	...	...	...	...	...	...	...	...	6	
Do.	A. Writ	Do.	Do.	...	0	10	...	...	...	...	...	...	...	...	45	
Do.	A. Kayan	Do.	Do.	...	...	...	...	...	...	...	...	...	...	...	2	
Jan Taw	Yon Lam	Do.	Do.	...	0	12	...	...	...	...	...	...	...	...	...	

STATEMENT I--contd.

Name of Mine.	Name of Owner or Company.	Situation. (Village, District, and Province.)	Mineral wrought.	Moving power used.	Total output of the year.	AVERAGE NUMBER OF PERSONS EMPLOYED DAILY.								Total number of persons employed.	Number of accidents causing death with the number of persons killed.
						ABOVE GROUND.				BELOW GROUND.					
						Men.	Women.	Children (under 12.)	Total.	Men.	Women.	Children (under 12.)	Total.		
CENTRAL PROVINCES.															
MOHEPANI COAL-FIELD.															
Mohpani	Nerbudda Coal and Iron Co., Ltd.	Mohpani, Narsinghpur, Central Provinces.	Coal.	Steam, Horse and Manual.	Tons. 43,046 Nil.	220	38	...	258	473	224	...	697	955	1 Accident, 1 Death.
WARDHA VALLEY COAL-FIELD.															
Warora	Government of India . .	Warora, Chanda, Central Provinces.	Do.	Steam .	148,470 Nil.	414	53	...	467	798	...	...	798	1,265	1 Accident, 1 Death.
.....	H. F. Cook & Sons . .	Total of Coal Mines .			191,516 Nil.	634	91	...	725	1,271	224	...	1,495	2,220	2 Accidents, 2 Deaths.
.....	Ditto	Tikaria, Jubbulpore..	Fuller's earth.	...	330 Tons	...	...	...	...	...	...	...	...	...	
		Tikaria and Merwara.	Lime-stone.	...	8,370 "	89	47	5	141	84	91	22	197	338	
MADRAS.															
Anantapur.															
Madras Diamond Mine	The Madras Diamond Mining Co., Ltd.	Vajara Karur, Gooty.	Diamonds	Steam	Nil	25	5	...	30	45	35	...	80	110	2 Accidents, 2 Deaths.
Forcedye	The Indian Prospecting Syndicate, Ltd.	Coimbatore. Twenty-six miles south-east of Kollegal near Porasonandanpalaiyam.	Gold	Manual	Nil	Under 50	...	...	Under 50	Under 50	...	...	Under 50	Under 100	Nil.

Godavari.			Tons.				Tons cwt.				Tons cwt.			
The Perakonda Graphite Mines.	The Godavari Coal Co., Ltd.	Perakonda, Bhadrachalam.	...	205	30	...	...	30	...	...	50	...	80	
Nil.														
Mines in Government and Patta lands.														
Nellore.														
Odur hill mine	C. Elkambaram . . .	Odur, Gudur . . .	Mica.	Manual .	Nil.	...	...	...	...	...	...	...	8	
27-20 acres plot	P. Mulla Reddi . . .	Do. . .	Do.	Do. .	3 1 70	...	...	...	...	...	...	...	82	
Putta land mine	P. Ranga Reddi . . .	Do. . .	Do.	Do. .	1 3 42	...	...	...	...	...	...	...	70	
Do. 1-50 acres	P. Guruvareja . . .	Do. . .	Do.	Do. .	0 7 31	...	...	...	...	...	...	...	49	
Do. 48-05 "	T. Rameswara Row . . .	Do. . .	Do.	Do. .	1 7 16	...	...	...	...	...	...	...	35	
Do. 8-25 "	Do. . .	Budanani, Do. . .	Do.	Do. .	1 13 102	...	...	...	...	...	...	...	25	
Do. 3-19 "	A. V. Kumarasami Naick . . .	Do., Do. . .	Do.	Do. .	0 11 89	...	...	...	...	...	...	...	60	
3-20 acres plot . . .	Do. . .	Kadivedu, Do. . .	Do.	Do. .	0 4 85	...	...	...	...	...	...	...	60	
45-65 acres plot	R. Lakshminarasa Reddi . . .	Nelaballai, Do. . .	Do.	Do. .	Nil.	...	...	...	...	...	...	...	20	
Camp No. V . . .	Messrs. Best & Co. . .	Chennur, Do. . .	Do.	Do. .	2 14 72	...	...	...	...	...	...	...	74	
Tollabodu mine . . .	A. Subha Naidu . . .	Sydapuram, Rapur Do. . .	Do.	Steam .	97 6 83	...	...	...	...	...	...	...	384	
Shah mine . . .	Messrs. Haji Muhammad Badsha Sahib & Co. . .	Do., Do. . .	Do.	Six-horse power steam engine. 12-horse power oil gas engine. Manual .	2 2 35	...	...	...	...	...	...	...	86	
Pallimitta mine . . .	Do. . .	Do., Do. . .	Do.	Do. .	18 6 58	...	...	...	...	...	...	...	157	
Maharani No. I . . .	S. McLardy . . .	Do., Do. . .	Do.	Do. .	0 10 71	...	...	...	...	...	...	...	12	
Do. No. II . . .	W. J. Eales . . .	Do., Do. . .	Do.	Do. .	Nil.	...	...	...	...	...	...	...	8	
Palamani mine . . .	A. Subha Naidu . . .	Utukur, Do. . .	Do.	Steam engine. Manual .	0 9 19	...	...	...	...	...	...	...	26	
7 acres mine . . .	K. Ramaswami Iyer . . .	Do., Do. . .	Do.	Do. .	0 11 104	...	...	...	...	...	...	...	35	
6-50 acres plot . . .	K. Subbaya Chetty . . .	Do., Do. . .	Do.	Do. .	0 1 87	...	...	...	...	...	...	...	30	
Trijunction . . .	Messrs. Binny & Co. . .	Do., Do. . .	Do.	Do. .	1 19 46	Information as to number of coolies not available.								
Lowlands . . .	Messrs. Gordon, Woodroffe & Co. . .	Griddalore, Do. . .	Do.	Do. .	0 5 40	Do.	Do.	Do.	Do.	Do.	Do.	Do.		
33-25 acres plot . . .	W. J. Eales . . .	Turimerla, Do. . .	Do.	Hand power. Do. .	Nil.	...	...	...	...	...	...	...		
Sikrishna . . .	Do. . .	Do., Do. . .	Do.	Do. .	0 15 22	...	...	...	...	...	...	...	20	
Worked for a few days, no information available.														

STATEMENT I—*contd.*

Name of Mine.	Name of Owner or Company.	Situation. (Village, District, and Province.)	Mineral wrought.	Moving power used.	Total output of the year.	AVERAGE NUMBER OF PERSONS EMPLOYED DAILY.								Total number of persons employed.	Number of accidents causing death with the number of persons killed.
						ABOVE GROUND.				BELOW GROUND.					
						Men.	Women.	Children (under 12.)	Total.	Men.	Women.	Children (under 12.)	Total.		
MADRAS—contd.															
Nellore—contd.															
Tons. cwt. lbs.															
12.37 acres plot	R. Lakshminarasa Reddi	Turimerla, Rapur	Mica	Hand power.	Nil.	...	...	...	...	...	...	...	76	1 Accident, 3 Deaths.	
F. Mine	A. Subba Naidu	Tummalatalapur, Rapur.	Do.	Steam engine and hand power.	4 19 74	...	...	...	...	...	...	...	54	Nil.	
Gop elup mine	Chotal Sahib	Do., Do.	Do.	Hand power.	3 12 53	...	...	...	...	...	...	...	156		
Lakshminarayana mine	R. Lakshminarasi Reddi	Chaganan, Do.	Do.	Do.	26 11 12	...	...	...	...	...	...	...	44	Nil.	
Chandra mine	N. Panchul Reddi	Do., Do.	Do.	Do.	0 2 76	...	...	...	...	...	...	...	42		
Nandabagunta	A. Subba Naidu	Turapundr, Do.	Do.	Do.	1 11 6	...	...	...	...	...	...	...	262	1 Accident, 1 Death.	
D. Mine	Do.	Inukurti, Do.	Do.	Steam engine and hand power.	6 11 21	...	...	...	...	...	...	...	9	1 Accident, 9 Deaths.	
Information not received															
12.56 acres plot	Messrs. M. M. Ispahani & Sons.	Beradavole, Do.	Do.	Do.	7 13 53½	...	...	...	...	...	...	...	146	1 Accident, 1 Death.	
Camp No. IV	Messrs. Best & Co.	Do., Do.	Do.	Do.	Nil.	...	...	...	...	...	...	...	38	Nil.	
18.25 acres plot	R. Ramachandra Reddi	Do., Do.	Do.	Hand power.	1 3 54	...	...	...	...	...	...	...	30	Nil.	
Minakshi	W. J. Eales	Marupur, Do.	Do.	Do.	Nil.	...	...	...	...	...	...	...	23		
Poluru mine (34.15) acres.	Messrs. H. C. Wickham and E. H. Sargent. Originally held by I. Subbarami Reddi.	Do., Do.	Do.	Do.	0 7 82	...	...	...	...	...	...	...	15	Nil.	
Ananda	W. J. Eales	Do., Do.	Do.	Do.	Nil.	...	...	...	...	...	...	...	10		
Hill plot	Do.	Do., Do.	Do.	Do.	0 0 48	...	...	...	...	...	...	...	8	Nil.	
U'indagunta	D. Narasa Reddi	Do., Do.	Do.	Do.	0 2 3	...	...	...	...	...	...	...	10		
34.15 acres plot	I. Subbarami Reddi	Do., Do.	Do.	Do.	...	...	...	...	...	...	...	...	...	...	

Salem.

Salem Magnesite works.	H. G. Turner	Do.	Magnesite	Do.	Tons. cwt. qrs. lbs.											
					4	0	0	0	...	...	...	...	...	...	...	12
			Mangupai and four other villages, Salem, 4½ mile from Salem on Omalur road.	Do.	19	19	2	18	...	...	...	...	...	...	...	Nil.
Corundum mine	Messrs. Gordon, & Co., Madras.	Do.	Corundum	Do.	19	19	2	18	...	59	53	112	54	51	105	217
Mohanur mines	Do.	Do.	Garnet's, corundum, and seed rubies.	Do.	2	15	1	15½	4	5	...	9	3	3	6	15

Vizagapatam.

	Vizianagram Mining Co., Ltd.	Garbham, Gajapatnam. Do.	Manganese ore. Do.	Manual Do.	Tons. 54,163											1 Accident, 1 Death.
						218	161	92	471	432	324	73	829	1,300		
Garbham mines	Do.	Kodur, Do.	Do.	Do.	18,210	67	59	63	189	584	306	58	948	1,137	Nil.	
Kodur mines, including Garividi, Duvvam, Devada and Sahanandapuram.	Do.	Parapi, Do.	Do.	Do.	3,100	50	46	20	116	25	24	10	59	175		
Parapi mines	Do.	Garuja, Chipurupalle.	Do.	Do.	980	47	39	12	98	28	17	7	52	150		
Garuja mines	Do.	Perumalle Chipurupalle.	Do.	Do.	10	5	3	...	8	...	...	...	...	8		
Perumalli mines																
				Total	76,463	387	308	187	882	1,069	671	148	1,888	2,770	1 Accident, 1 Death.	

PUNJAB.

Tons.																						
Mayo mine	Government of India	Salt	80,908.56	136	...	...	136	736	545	20	1,301	1,437	2 Accidents, 2 Deaths.									
														2 Deaths.								
Nurpur mine	Do.	Do.	135.63	...	...	...	...	1	2	...	3	3	} Nil.									
Warcha mine	Do.	Do.	3,871.49	...	...	...	...	54	50	9	113	113										
Total												84,915.68	136	...	...	136	791	597	29	1,417	1,553	2 Accidents, 2 Deaths.

x

Coal. Patent fuel.

Dandot Colliery	North Western Railway	Coal.	Steam.	Coal.	Tons.											
					62,648	5,760	426	...	34	460	1,052	...	24	1,076	1,586	Nil.
		Dandot, Jhelum, Punjab.	Do.	Do.	...	...	...	...	...	...	...	...	...	...	...	2 Accidents, 2 Deaths.

II.

Statement of Mines opened or closed down during the year ending 31st December 1901.

Name of Mine.	Name of Owner or Company.	Situation. (Village, District, and Province.)	Mineral wrought.	Moving power used.
PART I.—MINES OPENED DURING THE YEAR 1901.				
BENGAL.				
Bamna . . .	Kollaneswari Coal Co. . .	Bamna, Burdwan . . .	Coal.	
Banbahal . . .	Jagannath Marwari . . .	Banbahal, Do. . . .	Do.	
Bankura . . .	Kumar Rameswar Malia . . .	Bankura	Do.	
Bara Patki . . .	Messrs. Mackinnon, Mackenzie & Co. . . .	Bara Patki, Manbhum . . .	Do.	
Bargo . . .	Nepal Mondal	Bokrabandh, Godda, Sonthal Parganas . .	Do.	
Begunia . . .	Jogendra Nath Mookerjee . . .	Begunia, Burdwan	Do.	
Begunia . . .	Nando Lal Gorai	Begunia, Do.	Do.	
Begunia Khas . . .	Maharaja M. Ch. Nandi . . .	Begunia, Do.	Do.	
Bhalki (Asanbani) . . .	Mohindra Nath Gorai . . .	Saldoha, Dumka, Sonthal Parganas . .	Do.	
Bhowra . . .	Messrs. Mackinnon & Co. . .	Bhowra, Manbhum	Do.	
Chaptoria . . .	Beni Lal Pain	Chaptoria, Burdwan	Do.	
Chirudi . . .	Central Jherria Coal Co., Ltd. . .	Chirudi, Manbhum	Do.	
Chota Dhemu . . .	Rai Ram Bandhu Chatterji Bahadoor. . .	Chota Dhemu, Burdwan	Do.	
Chota Patki . . .	Messrs. Mackinnon & Co. . .	Chota Patki, Manbhum	Do.	
Dhabani . . .	Do.	Dhabani, Do.	Do.	
Dhandabor . . .	Do.	Dhandabor, Do.	Do.	
Domanpur . . .	G. Chandra Day	Saldoha, Dumka, Sonthal Parganas . .	Do.	
Footha . . .	Central Jherria Coal Co., Ltd. . .	Footha, Manbhum	Do.	
Gurbhodi . . .	Messrs. Mackinnon & Co. . .	Gurbhodi, Do.	Do.	
Jorapukhur . . .	Central Jherria Coal Co. . . .	Jorapokhur, Do.	Do.	
Koithi . . .	Katras Coal Co.	Koithi, Burdwan	Do.	
Mahulboni . . .	Messrs. Mackinnon & Co. . .	Mahulboni, Manbhum	Do.	
Mouthdi . . .	Chatterjee's Coal Co. . . .	Mouthdi, Burdwan	Do.	
Mouthdi . . .	Girish Ch. Roy	Do., Do.	Do.	
Musla . . .	Sreehoje Company	Musla, Do.	Do.	
Nandi Boridanga Pit No. 1.	Horendra Krishna Mukhopadhyaya. . .	Nandi, Do.	Do.	
Nandi Rajpur Pit No. 2.	Nandi Coal Association . . .	Nandi, Do.	Do.	
Napara . . .	Bonwari Lal Mukerjee . . .	Napara, Do.	Do.	
Napara . . .	Maharaja M. Ch. Nandi . . .	Napara, Do.	Do.	
Nonikdi . . .	Central Jherria Coal Co., Ltd. . .	Nonikdi, Manbhum	Do.	
Pundurkanali . . .	Do.	Pundurkanali, Do.	Do.	
Purusia . . .	Do.	Purusia, Do.	Do.	
Raghunath Chak . . .	Jagannath Marwari	Raghunath Chak, Burdwan	Do.	

STATEMENT II—*contd.*

Name of Mine.	Name of Owner or Company.	Situation. (Village, District, and Province.)	Mineral wrought.	Moving power used.
PART I.—MINES OPENED DURING THE YEAR 1901— <i>contd.</i>				
BENGAL— <i>contd.</i>				
Ramkanali . . .	Broja Bhushon Trigunait . . .	Ramkanali, Manbhum . . .	Coal.	
Do.	Profulla Kumar Biswas . . .	Do.	Do.	
Satpukuria . . .	Sidheswari Coal Co. . . .	Satpukuria, Burdwan . . .	Do.	
Sealgudhree . . .	Central Jherria Coal Co., Ltd.	Sealgudhree, Manbhum . . .	Do.	
Sitarampur . . .	New Beerbhum Coal Co. . .	Sitarampur, Burdwan . . .	Do.	
Tetulia	Agabeg Brothers	Tetulia, Manbhum	Do.	
The New Ajoy Valley Syndicate.	A. White, Esq.	Churulia, Burdwan	Do.	
Urralgurria . . .	Central Jherria Coal Co., Ltd.	Urralgurria, Manbhum . . .	Do.	
Behara	Girish Chundra Sur	Behara, Jamui, Bhagalpur . . .	Mica.	
Bishuna Prasanna Kalabua.	Kanai Lal Singha	Koderma, Hazaribagh . . .	Do.	
Thakuri Ranglabua .	Chota Nagpur Mica Syndicate, Ltd.	Do.	Do.	
MADRAS.				
Nellore District.				
18·25 acres mine . .	R. Ramachandra Reddi . . .	Biradavole, Rapur	Mica . . .	Hand power.
Sreerama mine . . .	K. Penchul Reddi	Marupur, Do.		
Chandra mine . . .	N. Penchul Reddi	Chaganan, Do.		
12·37 acres plot . .	R. Lakshminarasa Reddi . .	Turimerla, Do.		
33·25 acres plot . .	W. J. Eales	Do., Do.		
Polemera mine . . .	Messrs. H. C. Wickham and E. H. Sargent.	Marupur, Do.		
19·15 acres plot . .	Do. Do.	Do., Do.		
45·65 acres plot . .	R. Lakshminarasa Reddi . .	Nelaballee, Gudur		
1·50 acres patta land mine.	P. Guravaraju	Odur, Do.		
77 acres patta land mine.	P. Runga Reddi	Do., Do.		
3·19 acres plot . . .	A. V. Kumarasami Naicker .	Budanan, Do.		
Venayaka mine . . .	Do. Do.	Kadivedu, Do.		
Gordon Quarry . . .	Messrs. Gordon, Woodroffe & Co.	Prabhagiripatnam, Atmakur . .		
18·05 acres plot . .	Lebakula Sessa Reddi . . .	Chenakraka, Kavali		
12 acres patta land mine.	Sultan Mohideen Sahib . . .	Gudavallu, Do.		
3 acres patta land mine.	Raja Sri Ranga Bhupala Bale Row.	Chenakraka, Do.		
7·37 acres patta land mine.	Y. Lakshminarasa Reddi . .	Gudavallu, Do.		

STATEMENT II—*contd.*

Name of Mine.	Name of Owner or Company.	Situation. (Village, District, and Province.)	Mineral wrought.	Moving power used.
PART I.—MINES OPENED DURING THE YEAR 1901— <i>contd.</i>				
MADRAS— <i>contd.</i>				
Nilgiris District.				
Richmond . . .	Richmond Gold Mining Company (Wynaad Reefs Syndicate).	Nelliyalam	Gold (quartz).	
Dingly Dale . . .	Mysore-Wynaad Gold Mining Company.	Do.	Do.	
Glenrock . . .	Glenrock Gold Mining Company.	Do.	Do.	
Llewellyn Mica Mines.	Messrs. Pierce, Leslie & Co., Ltd.	Cherangode	Mica.	
Cherambady Mica Mines.	Mr. W. Morris	Do.	Do.	
North Arcot District.				
Chinnamareddi Khandigai mine.	Mr. G. Quinn	Chinnamareddi Khandigai, Chittoor	Mica	Manual labour.
Salem District.				
Kumaripalaiyam . .	Messrs. Gordon, Woodroffe & Co.	Kumaripalaiyam, Namakkal	Corundum and precious stones.	
PART II.—MINES CLOSED DURING THE YEAR 1901.				
BENGAL.				
Sanctoria Pit No. 10 .	Bengal Coal Co. . . .	Sanctoria, Burdwan	Coal	Steam.
Singra	T. Radford, Esq. . . .	Palamau, Chota Nagpur	Do.	Do.
MADRAS.				
Kamakshe mine . .	W. J. Eales	Marupur, Nellore	Mica	Hand power.
3·48 acres plot . .	Messrs. M. M. Ispahani & Sons.	Biradavole, Do.		
4·83 acres plot . .	I. Subbarami Reddi . .	Marupur, Do.		
6·26 acres plot . .	A. Subba Naidu	Mogalla, Do.		
H. Mine	Do.	Turimerla, Do.		
Poondla mine . . .	Do.	Sydapuram, Do.		
Voodalavagu mine .	Do.	Turpupundi, Do.		
33·25 acres plot . .	W. J. Eales	Turimerla, Do.		
Maharani No. II pit.	Do.	Sydapuram, Do.		
5 acres plot . . .	Y. Venkataram Reddi .	Vadlapendi, Do.		
4·24 acres plot . .	Fazulla Badsha Sahib .	Sydapuram, Do.		
12·37 acres plot . .	R. Lakshminarasa Reddi, originally held by B. V. Subba Reddi.	Turimerla, Do.		
106·19 acres plot .	J. H. Castor	Biradavole, Do.		
Lowlands Quarry . .	Messrs. Gordon, Woodroffe & Co.	Griddalore, Do.		

STATEMENT II—*concl'd.*

Name of Mine.	Name of Owner or Company.	Situation. (Village, District, and Province.)		Mineral wrought.	Moving power used.
PART II.—MINES CLOSED DURING THE YEAR 1901— <i>contd.</i>					
MADRAS— <i>contd.</i>					
30 acres plot . . .	J. H. Castor . . .	Inukurti,	Nellore . . .	Mica . . .	Hand power.
30.70 acres plot . .	Kadir Mohideen Sabib . .	Chaganan,	Do.		
8.25 acres plot . . .	T. Rameswara Row . . .	Budanan,	Do.		
3.90 acres plot . . .	Do.	Do,	Do.		
118.05 acres patta land.	Do.	Odur,	Do.		
5 acres plot	K. Venkatasubbiah . . .	Chillakeir,	Do.		
9 acres plot	N. Raghavaloo Naicker . .	Gudur,	Do.		
Appha Quarry . . .	Messrs. E. H. Sargent and H. C. Wickham.	Do.,	Do.		
7.77 acres plot . . .	Ipur Ranga Reddi	Prabhagiripatnam,	Do.		
Highlands mine . . .	Messrs. Gordon, Woodroffe & Co.	Do.,	Do.		
5.40 acres plot . . .	D. Narasa Reddi	Do.,	Do.		
5 acres plot	Muhammad Usman Sahib . .	Tatiparty,	Do.		
42.99 acres plot . .	Ipur Ranga Reddi	Peramana,	Do.		
Gordon Quarry . . .	Messrs. Gordon, Woodroffe & Co.	Prabhagiripatnam,	Do.		
11.97 acres plot . . .	Raja Sri Ranga Bhupala Bale Row.	Gudavallu,	Do.		
Dingly Dale	Mysore-Wynaad Gold Mining Co.	Nelliyalam, Nilgiris	Gold (quartz).	Nil.	
Moolgam	} Vizianagram Mining Co., { Ld.	Moolgam, Vizagapatam	Manganese ore.	Manual labour.	
Bondapalli		Bondapalli, Do.			

III.

Statement of prosecutions instituted under the provisions of the Indian Mines Act, VIII of 1901, during the year ending 31st December 1901.

[illegible]

STATEMENT IV.

LIST OF FATAL ACCIDENTS WHICH OCCURRED IN MINES DURING THE YEAR ENDING
31ST DECEMBER 1901.

Number.	Date and hour of Accident.	Name of mine, mineral wrought, and situation (village, district, and province).	Name of Owner or Company.	Sex, age, and occupation of person killed.	Cause of accident and remarks.
UNDERGROUND.					
FALLS OF GROUND.					
<i>Falls of Roof, Stone or Coal.</i>					
1	29th January, 5 A.M.	No. 3 Mine, Khost Colliery, Baluchistan.	North Western Railway.	Boota Singh, 22, (m.), Carpenter.	* While he was drawing timber, the roof fell and buried him up to the waist. He died before he was extricated, and within half an hour of the occurrence.
2	22nd May, 10-30 A.M.	No. 4 Zardalu, Do.	Do.	Peer Mahomed, 25, (m.), Pack-wall coolie.	* While he was collecting stone from the goaf to form a pack-wall, roof-stone fell on him, killing him instantly.
3	23rd July, 12-30 P.M.	Adit No. 12, Do.	Do.	Ahmed, 37, (m.), Carpenter.	* While he was putting in a sprag to support a band of stone, the latter fell and knocked the man down, breaking his neck against a prop.
4	1st November, 10-30 A.M.	No. 3 Mine, Do.	Do.	Lahoree, 19, (m.), Coolie.	* While he was in the goaf collecting stone for building a pack-wall, roof-stone fell on him. Instantly killed.
5	5th November, 3 P.M.	No. 3 Zardalu, Do.	Do.	Mir Ahmed, 29, (m.), Miner.	* While he was collecting stone from the goaf to form a pack-wall, a 3" slab of shale fell on him fracturing his spine. He died 5 days later.
6	31st January, 12-30 P.M.	Singareni Collieries, Yellandu, Hyderabad, (Deccan).	Hyderabad (Deccan) Co.	Peddi, 10, (f.), Filler.	* A piece of roof shale, 4' x 3' x 9", fell on her head, causing instant death.
7	26th February, 5 A.M.	Do.	Do.	Koothala Rajeeagarh, 35, (m.), Coal-cutter.	* Stone fell on him. Instantly killed.
8	23rd April, 2-30 P.M.	Do.	Do.	Bogam Khamdhoss, 26, (m.), Rope-man.	* Roof-stone measuring, 7' x 6' x 6", fell on him, killing him instantly.
9	15th May, 7 A.M.	Do.	Do.	Kanocantla Ranoc Possigah, 30 (m.), Timbering coolie.	* He pulled out a piece of timber and the roof fell on him. Instantly killed.
10	7th February, 3-30 P.M.	Ledo Valley (West), Lakhimpur, Assam.	Assam Railways and Trading Co., Ltd.	Bhugawan, 26, (m.), Filler.	* While he was filling a basket of coal on the lower side of an opening, the "clunch," which fell on the upper side, rolled on to his leg, crushed it badly and severed an artery. He died an hour afterwards.
11	24th August, 4 P.M.	Do. (East).	Do.	Kousilla, 23, (f.), Coal-carrier.	* Coal fell on her.
12	17th February, 1 P.M.	No. 1 Incline, Gourangdi Colliery, Gourangdi, Burdwan, Bengal.	Burrakur Coal Co., Ltd.	Debidin Passi, 20, (m.), Miner.	* While he was levering down a piece of dangerous roof-coal, he over-balanced and fell forward. The coal fell on his head. He died three hours later.
13	20th September, 6 P.M.	No. 11 Pit, K., Kantapahari Colliery, Gourangdi, Burdwan, Bengal.	Do.	Debi Garoria, 52, (m.), Miner.	A piece of roof-stone, 8' x 3' x 9", fell on him. He died 4 days later.
14	1st May, 2-30 P.M.	Chanah Colliery, Chanah, Manbhumi, Bengal.	Bengal Coal Co., Ltd.	Mangoo Majee, 30, (m.), Coal-cutter.	Roof-stone, 7' x 8' x 1", fell on him. He was released within an hour but was dead.

* Information furnished by Mine Manager.

LIST OF FATAL ACCIDENTS—*contd.*

Num-ber.	Date and hour of Accident.	Name of mine, mineral wrought, and situation (village, district, and province).	Name of Owner or Company.	Sex, age, and occupation of person killed.	Cause of accident and remarks.
Underground—<i>contd.</i>					
FALLS OF GROUND—<i>contd.</i>					
<i>Falls of Roof, Stone or Coal—contd.</i>					
15	20th June, noon.	Begunia Colliery, Burdwan, Bengal.	N. L. Gorai .	Jhiju Maji, 30, (m.), Barsa Maji, 25 (m.), Jibon Maji, 20, (m.), <i>Coal-cutters.</i>	Fall of roof, 25' × 10' × 4'6".
16	8th August, 3 A.M.	Lutchipore Colliery, Lutchipore, Burdwan, Bengal.	Lutchipore Coal Co., Ltd.	Bhabi Bowry, 14, (f.), <i>Coal-carrier.</i>	While she was sleeping in a drive, a piece of shale, 2' × 1'3" × 3", fell on her, causing instant death.
17	23rd October, 9 A.M.	Gangutiya Colliery, Gangutiya, Burdwan, Bengal.	Bengal-Nagpur Coal Co., Ltd.	Latoo Gope, 35, (m.), <i>Stone-cutter.</i>	While he was clearing a drain, a piece of roof-stone, (1' × 8" × 6"), fell on him. He died three hours later.
18	31st October, 5-15 P.M.	Do.	Do.	Latoo Laly, 35, (m.), Sardar. Samar Bori, 27, (m.), <i>Miner.</i>	When a large area of the mine and surface collapsed, the air blast hurled them against a pillar. They died a few hours later.
19	18th July, 3-30 P.M.	No. 25 Shaft, Serampore Colliery, Giridih, Hazaribagh, Bengal.	East Indian Railway Co.	Sobhan Bhuyan, 60, (m.), <i>Coal-cutter.</i>	While the roof was being sounded, a piece of roof-stone, 1' 6" × 1' 6" × 3", fell on him.
20	1st October, 12-30 P.M.	Do.	Do.	Jumai Meah, 32, (m.), <i>Coal-carrier.</i>	While he was filling a basket with coal, a piece of shale, 1' × 1' × 9", fell on him; he died a couple of hours later.
21	26th July, 11 A.M.	Lakhari Colliery, Giridih, Hazaribagh, Bengal.	Bayra Coal Association.	Niro Gope, 26, (m.), <i>Coal-cutter.</i>	Roof-stone measuring, 4' × 2' × 6", fell on him: he was extricated within an hour, but died immediately afterwards. He had been warned not to enter the heading.
22	17th January, noon.	Mayo Mine, (Salt), Khewra, Jhelum, Punjab.	Government of India.	Mahamadu, 50, (m.), <i>Miner.</i>	* A block of salt fell on to and broke the tripod on which he was standing. He fell a distance of 20 feet on to his back, and died three days later from internal injuries.
23	10th October, 11 A.M.	Do.	Do.	Fathu, 15, (m.), <i>Miner.</i>	* A piece of salt about 5½ maunds in weight fell on him. Instantly killed.
24	2nd February, noon.	A. Subha Naidu and Co., (Mica), Nellore, Madras.	A. Subh. Naidu and Co., Nellore.	Naidu, Benkeda, 35, (m.); Pallupri Gadu, 45, (m.); Palla Canda Narisigadu, 24, (m.); Upoo Narisi Gadu, 50, (m.); Pella Pachi Wadu, 45, (m.); Vullapu Kurra Wadu, 25, (m.); Nalloghu Pinnoo Wadu, 40, (m.); Nellamghu Goonda Wadu, 30, (m); Tamula Gurubhi, 22, (f.), <i>Coolies.</i>	* The ground above them collapsed from the weight of a loaded wagon which passed over it.
<i>Falls of Side.</i>					
25	27th March, 4 P.M.	Ledo Valley, West, Lakhimpur, Assam.	Assam Railways and Trading Co., Ltd.	Milantin, 22, (f.), <i>Coal-carrier.</i>	* Coal fell on her.

* Information furnished by Mine Manager.

LIST OF FATAL ACCIDENTS—*contd.*

Number.	Date and hour of Accident.	Name of mine, mineral wrought, and situation (village, district, and province).	Name of Owner or Company.	Sex, age, and occupation of person killed.	Cause of accident and remarks.
Underground—<i>contd.</i> FALLS OF GROUND—<i>contd.</i> <i>Falls of Side—contd.</i>					
26	22nd March, 4 P.M.	Tikak Colliery, Lakhimpur, Assam.	Assam Railways and Trading Co., Ltd.	Ghasee, 23, (f), <i>Coal-carrier.</i>	* While she was in the wagon way coal fell on her.
27	6th February, 11 P.M.	Isabel Shaft, Kantapahari, Gourangdi, Burdwan, Bengal.	Burrakur Coal Co., Ltd.	Madari Lodh, 28, (m), <i>Coal-cutter.</i>	While under-cutting coal, it fell on him. He died 6 hours later.
28	7th August, 6 P.M.	No. 6 Pit, Lutchipore Colliery, Lutchipore, Burdwan, Bengal.	Equitable Coal Co., Ltd.	Mothur Majee, 32, (m), <i>Miner.</i>	* Coal fell on him. He died 3 days later.
29	24th May, 9-30 A.M.	Brahmanbararee Colliery, Brahmanbararee, Manbhum, Bengal.	East India Coal Co., Ltd.	Natho Mala, 35, (m), <i>Stone-cutter.</i>	While he was removing the shale immediately above the coal in a quarry, a slab, 4' x 3' x 6", from a slightly overhanging face fell on him. Instantly killed.
30	27th July, 4 P.M.	Hetkandra Colliery, Hetkandra, Manbhum, Bengal.	V. Newton, Esq.	Soogi Mahatin, 12, (f), <i>Coolie.</i>	While 18 coolies were working in an open untimbered excavation, about 80 feet deep in sand, portion of the side collapsed and buried three of them. Two were rapidly extricated, but it took an hour to ascertain where the girl was.
31	24th November, 7 P.M.	No. 15 Pit, Khooldia Colliery, Giridih, Hazaribagh, Bengal.	Bengal Coal Co., Ltd.	Sib Charan Hazam, 18, (m), <i>Coal-carrier.</i>	While he was filling a basket with coal, a stone (from a band in the seam), 2' x 1' 6" x 6", fell on him. He died 5 hours later.
32	2nd July, 7 P.M.	Lakhari Colliery, Giridih, Hazaribagh, Bengal.	Barra Coal Associa- tion.	Hari Nandan Rai, 20, (m), <i>Coal-cutter.</i>	Coal weighing about 2 maunds, fell on him. Instantly killed.
33	13th December, 11 A.M.	No. 4 Pit, Warora Colliery, Chanda, Central Provinces.	Government of India.	Subnath Singh 40, (m), <i>Miner.</i>	* Coal from the corner of a pillar fell on him.
34	16th January, noon.	12 56 acres plot, (Mica), Nellore, Madras.	Messrs. M. M. Ispahani and Sons.	Muthusamy, 23 (m), <i>Coolie.</i>	
35	8th February, 3 P.M.	F. Mine, (Mica), Nellore, Madras.	A Subha Naidu and Co.	Gurram Palugadu, 22, (m), <i>Miner.</i> Chittili Pol, 20, (f), <i>Coolie.</i> Thalafala Nagi, 22, (f), <i>Coolie.</i>	* The side of a trench collapsed on to 4 coolies: a man and a woman were instantly killed, and the other woman died 12 hours later.
36	28th February, 4 P.M.	Gudavallur plot, (Mica), Nellore, Madras.	Md. Qairuddin	Mulla Guravada, 40 (m), <i>Coolie.</i> Mulla Nagadu, 12 (m), <i>Coolie.</i>	
37	15th Septem- ber, 3 P.M.	Dhaknal Prospecting, (Mica), Charki, Hazaribagh, Bengal.	Messrs. F. F. Chres- tien and Co.	Tahhabu Roy, 13, (m), <i>Coolie.</i>	A mass about 20 maunds in weight fell on four miners working in a trench. All were injured, and one of them died on the following day.
38	25th February, 8 A.M.	Rukminia Quarry, (Slate), Dharhara, Monghyr, Bengal.	Messrs. C. T. Ambler and Co.	Jaman, 30, (m), <i>Driller.</i> Poona Rai, 36, (m), <i>Driller.</i> Boodan Rai, 32, (m), <i>Driller.</i>	A mass of slate fell on them from the sides of a trench-like excavation, 18 feet deep.

* Information furnished by Mine Manager.

LIST OF FATAL ACCIDENTS—*contd.*

Number.	Date and hour of Accident.	Name of mine, mineral wrought, and situation (village, district, and province).	Name of Owner or Company.	Sex, age, and occupation of person killed.	Cause of accident and remarks.
Underground—contd.					
FALLS OF GROUND—contd.					
Falls of Side—contd.					
39	17th August, 7 A.M.	Vajrakarur, (Diamond), Anantapur, Madras.	Madras Diamond Mining Co.	Sunkeppa, 45, (m), Coolie.	* The sides collapsed and buried him.
40	26th June, noon.	Dharong Mine, (Salt), Banuoo, Punjab.	Government of India.	Mir Alim, 40, (m), Coolie.	* About 20 seers of earth fell on him. He died 6 days later.
41	...	Ruby Mines, Mogok, Upper Burma.	Ruby Mines Co.	4 males.	
42	...	Do.	Do.		
43	...	Do.	Do.		
SHAFT ACCIDENTS.					
Overwinding.					
44	3rd November, 2-30 P.M.	No. 3 Pit, Kantapahari Colliery, Gourangdi, Burdwan, Bengal.	Burrakur Coal Co., Ltd.	Mcurooly Bowry, 33, (m), Sinker. Kulpo Bowry, 32, (m), Sinker.	The bucket containing 4 men was wound over the pulley and fell on the ground near the engine-house— all the men were ejected and two of them were instantly killed.
45	9th November, 7-30 P.M.	Adjai Colliery, Nandi, Burdwan, Bengal.	Adjai Coal Co., Ltd.	Girish Bowry, 18 (m), Fireman.	When the cage was overwound, the rope broke near the D link and passed into the engine-house, striking and instantly killing the fireman, who was standing close to the engine khalasie.
46	13th November, 3-30 P.M.	No. 4 Pit, Jamuria Colliery, Jamuria, Burdwan, Bengal.	Equitable Coal Co., Ltd.	Agnoo Kol, 35, (m) Miner. Pairoo Kol, 39, (m), Miner.	When the cage was overwound, the chains below the D link broke, and the cage fell to the bottom of the shaft, 196 feet deep.
Ropes or Chains Breaking.					
None.					
Ascending or descending by Machinery.					
47	12th June, 6-30 P.M.	No. 2 Pit, Salanpur Colliery, Salanpur, Burdwan, Bengal.	Borra Coal Co., Ltd.	Kaili Myhan, 24, (f), Coal-carrier.	While three women were descending No. 2 pit (270 feet deep), one of them fell out of the cage and to the bottom of the shaft.
48	31st July, 9-30 A.M.	No. 7 Pit, Toposi, Burdwan, Bengal.	Singaran Coal Syndicate.	Tilloo Hari, 28, (m), Banksman.	* He put his head out of the ascending cage and was jammed against a beam at the mouth of the pit.
Falling into Shaft from Surface.					
49	7th March, 2 A.M.	No. 3 Pit, Sodepore Colliery, Burdwan, Bengal.	Bengal Coal Co., Ltd.	Dhoni Roy, 38, (m), Banksman.	While he was pushing a loaded tub out of the cage on to the mat sheet at the bank, the engine khalasie raised the cage. He fell to the bottom of the shaft, 170 feet deep.
50	3rd June, 10 A.M.	Ladstone Pit, Do.	Do.	Mangare Pandey, 64, (m), Banksman.	When the cage was above the pit bank, he pushed a tub into the shaft and fell to the bottom of the pit, 380 feet deep. The gates are not automatic.
51	10th May, 12-5 A.M.	Shaft No. 8, Bamondia Colliery, Bamondia, Burdwan, Bengal.	H. C. Bose and Co.	Mangal Lohar, 40, (m), Banksman.	While he was standing on the moving trolley and trying to steady the descending bucket, he fell forward and to the bottom of the shaft, 120 feet deep.
52	4th November, 11-30 P.M.	Panchgutiya Colliery, Panchgutiya, Burdwan, Bengal.	Burrakur Coal Co., Ltd.	Baowl Bowry, 22, (m), Banksman.	While he was fixing the chains on bucket, he overbalanced and fell from the trolley into and to the bottom of the shaft, 168 feet deep.

LIST OF FATAL ACCIDENTS—*contd.*

Number.	Date and hour of Accident.	Name of mine, mineral wrought, and situation (village, district, and province).	Name of Owner or Company.	Sex, age, and occupation of person killed.	Cause of accident and remarks.
Underground—<i>contd.</i>					
SHAFT ACCIDENTS—<i>contd.</i>					
<i>Falling from Part Way down.</i>					
53	22nd April, 3-15 P.M.	No. 12, Khost Colliery, Baluchistan.	North-Western Railway	Goharam, 37, (m), Miner.	*While he was sliding down a stenton, he lost his hold of the rope and fell about 60 feet to the bottom of the shaft.
<i>Things falling from Surface.</i>					
54	2nd November, 6-30 P.M.	No. 5 Air Shaft, Salanpur Colliery, Bunbiddi, Burdwan, Bengal.	Borrea Coal Co., Ld.	Sundor Bowry, 25, (m), Coal-cutter.	While he was at the bottom of the pit, 109 feet deep, a piece of coal, 3" in cubical measurement, fell on to his head and fractured his skull. He died 18 hours later.
55	25th March, noon.	Mouthdi Colliery, Mouthdi, Burdwan, Bengal.	Mouthdi Coal Co.	Ram Pal Maji, 25, (m), Coal-cutter.	A 6 inch cube of coal fell from the surface to the bottom of the pit, 110 feet deep, and struck his head. He died 2 days later.
<i>Things falling from Part Way down.</i>					
56	5th February, 5 P.M.	North Ghusik Colliery, Kalipahari, Burdwan, Bengal.	Indian Coal Co., Ld.	Dulla-Maji, 20, (m), Coal-cutter.	Two buckets are worked in a shaft, 80 feet deep. When the full bucket was half way to the surface, a piece of coal, 1' x 8" x 6", fell out of it and on to the head of a man at the bottom of the pit. He died next day.
57	19th June, 4 A.M.	No. 29 A Pit, Khooldia Colliery, Giridih, Hazariabagh, Bengal.	Bengal Coal Co., Ld.	Utma Kumar, 30, (m), Stone-cutter.	While he and three other sinkers were drilling holes, a stone fell from the sides of the shaft on to his head. He died 4 days later.
MISCELLANEOUS UNDERGROUND.					
<i>Explosions of Fire-damp or Coal dust.</i>					
58	31st October, 2-30 P.M.	Tikak Mine, Lakhimpur, Assam.	Assam Railways and Trading Co., Ld.	Mohan, 35, (m), Sardar. Kalicharan, 32, (m), Opening Man. Madhab, 25, (m), Filler. Rupi, 24, (f), Coal-carrier.	*A fall in the bottom-coal-opening brought down gas which is supposed to have been in a pocket, 30 feet above the roof. It exploded on contact with the Sardar's naked light. Two of the men died on 31st October, and the other two persons died on 1st November.
<i>By Explosives.</i>					
59	16th May, 3 A.M.	No. 28 a., Khooldia Colliery, Giridih, Hazariabagh, Bengal.	Bengal Coal Co., Ld.	Goberdhone Kumar, 28, (m), Sinker.	An hour after the explosion of 12 dynamite charges, the sirdar and two sinkers descended the pit. As the fumes had not cleared, the men were wound to the surface again, and one of them died 10 hours later.
60	17th April, 12-30 P.M.	Jhagrahia Mine, (Mica), Koderma, Hazariabagh, Bengal.	Messrs. F. F. Chretien and Co.	Latu Singh, 12, (m), Miner.	*A charge which he was tamping with, a steel bar exploded. Two men were injured and one died 10 days later.
61	23rd February, 4 P.M.	Nadalagunta, (Mica), Neilor, Madras.	A. Subha Naidu and Co.	Golla Ragadee, 26, (m), Coolie.	.....
62	21st May, noon.	Vajrakam, (Diamond), Anantapur, Madras.	Madras Diamond Mining Co.	Nitikolnnon, 20, (m), Coolie.	*While he was drilling a hole, a piece of undischarged dynamite exploded.

LIST OF FATAL ACCIDENTS—*contd.*

Num-ber.	Date and hour of Accident.	Name of mine, mineral wrought, and situa-tion (village, district, and province).	Name of Owner or Company.	Sex, age and occupation of person killed.	Cause of accident and Remarks.
Underground—<i>contd.</i>					
MISCELLANEOUS UNDERGROUND—<i>contd.</i>					
<i>On Inclined and Engine Planes.</i>					
63	9th March, 6-45 A.M.	Singareni Colliery, Yellandu, Hyderabad (Deccan).	Hyderabad (Deccan) Co.	Samala Latchloo, 12, (m), Filler.	*A tub, which was being filled, ran down the jig and was derailed at the crossing. He was jammed against the wall as he tried to run across the line.
64	9th April, 6 A.M.	Do. . . .	Do. . . .	Gara Buckadoo, 35, (m), Trammer.	*While the set was in motion, he was getting on the rope, but struck his head against the roof and fell under the set which passed over him.
65	20th May, 2-30 P.M.	Do. . . .	Do. . . .	Dangasaram Narsee, 14, (f), Filler.	*She slipped and fell on to the line. Five tubs passed over her.
66	9th June, 4-10 A.M.	Do. . . .	Do. . . .	Shaik Modin, 34, (m), Sigman.	*While a set of empties were being lowered, they derailed and knocked down a prop which struck him on the head.
67	3rd July, 9-30 P.M.	Do. . . .	Do. . . .	Narsam Posee, 36, (f), Filler.	*The stone used to chock an empty set of 5 tubs gave way. They moved towards and collided with two tubs, which she was uncoupling. Her head was jammed between them.
68	14th November, 5-30 A.M.	Do. . . .	Do. . . .	Medeo Prasth, 29, (m), Coolie.	*While he was riding on the full set with the ropeman, the rope slackened and he fell under the tubs. He died 2 hours later.
69	25th March, 7 A.M.	No. 1 a, Incline, Alkusa Colliery, Alkusa, Manbhum, Bengal.	Raneegunge Coal Association, Ltd.	Ahabalal Nunia, 20, (m), Miner.	While riding on an empty tub, he lost control of it and was dashed against a full set at the buffer end of the line.
70	24th September, 7 P.M.	No. 2 Incline, Chanch Colliery, Chanch, Manbhum, Bengal.	Bengal Coal Co., Ltd.	Gopal Majhee, 13, (m), Signal boy.	While he was running down No. 2 incline, the descending set struck him. He died 5 hours later.
<i>Ropes or Chains breaking.</i>					
71	28th September, 1 A.M.	No. 1 Incline, Atlas Colliery, Teesrah, Manbhum, Bengal.	Atlas Coal Co., Ltd.	Bhaloo Mabat, 20, (m), Trammer.	While three empty tubs were being lowered, one of them broke away and was derailed in turning a sharp curve. It fell on to and badly crushed his ankle. He died 8 hours later.
72	13th August, 6-30 A.M.	Singareni Colliery, Yellandu, Hyderabad, (Deccan).	Hyderabad (Deccan) Co.	Abdulla, 35, (m), Trammer.	*While he was descending the incline, the couplings of an ascending set broke and ten tubs ran back. He was knocked down and died an hour later.
73	3rd October, 8 P.M.	Do. . . .	Do. . . .	Puthnoor Chuniga-doo, 9, (m), Filler.	*While a set of empties was being lowered down the north incline, the couplings snapped and a tub dashed into a gallery and against a prop which fell on him. He died 18 hours later.
<i>By Trams and Tubs.</i>					
74	10th January, 11-30 A.M.	No. 1, Kamaljore, Serampore Colliery, Giridih, Hazaribagh, Bengal.	East Indian Rail-way Co.	Cheondri Ghatwarin, 14, (f), Coal-carrier.	While she was walking between the two roads, a runaway tub knocked her down. The right foot was lacerated and she died from tetanus three weeks later.
ON SURFACE.					
BOILER EXPLOSIONS.					
None.					

* Information furnished by Mine Manager.

LIST OF FATAL ACCIDENTS—*concl'd.*

Num-ber.	Date and hour of Accident.	Name of mine, mineral wrought, and situa-tion (village, district, and province).	Name of Owner or Company.	Sex, age, and occupation of person killed.	Cause of accident and Remarks.
On Surface—<i>cont'd.</i>					
ON RAILWAYS, SIDINGS, OR TRAMWAYS.					
75	12th October, 11 P.M.	Madhubpore Colliery, Madhubpore, Burdwan, Bengal.	Bengal Coal Co., Ltd.	Khatoo Bowry, 40, (m), <i>Coolie.</i>	While he was riding on the buffer end of a trajector, he slipped and fell on to the rails. A wheel passed over and severely lacerated his leg. He died 3 days later.
76	21st February, 6-30 A.M.	Toposi Colliery, Kulastori, Burdwan, Bengal.	Raneegunge Coal Association, Ltd.	Saharah Gope, 30, (m), <i>Trammer.</i>	He was hand-shunting a tub, and on arrival at a section of the line having a down grade, he got inside the tub. The latter travelled to a bridge 30 feet in height above the nullah. The tub left the rails and with the man fell to the bottom of the nullah.
77	20th August, 5 A.M.	Pit 24, Mohpani Colliery, Narsinghpur, Central Provinces.	Nerbudda Coal and Iron Co., Ltd.	Mohonlal Gond 35, (m), <i>Bailer.</i>	While crossing the tram line, he was knocked down by a train of two tubs and died at the hospital eleven days later.
78	14th October, 11-30 A.M.	Alkusa Colliery, Alkusa, Manbhum, Bengal.	Do.	Mangi Nunia, 2, (f).	While she was sitting on the inner rail at the wharf between two stationary E. I. R. wagons, several coolies were shunting other wagons. They collided with one of the stationary wagons and it moved and struck her instantly killed.
79	1st October	Kodur, (Manganese), Vizagapatam, Madras.	Vizianagram Mining Co., Ltd.	Paraya, 12, (f), <i>Coal-carrier.</i>	*A truck ran over her.
BY MACHINERY.					
80	...	Ruby Mines, Mogok, Upper Burma.	Ruby Mines Co.	(m)	While attempting to extricate a trespasser, who was entangled in some machinery, he received fatal injuries.

* Information furnished by Mine Manager.

Department of Mines, India.

REPORT

OF THE

CHIEF INSPECTOR OF MINES IN INDIA,

UNDER

The Indian Mines Act (VIII of 1901)

FOR THE

YEAR ENDING 31ST DECEMBER

1903.

BY

JAMES GRUNDY, ESQ., F.G.S., ETC.,

CHIEF INSPECTOR OF MINES IN INDIA.



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**Errata to the Report of the Chief Inspector of Mines in India
for the year 1903.**

On page 3, line 10, *for 6,566,224 read 6,314,324*, and *for 296,930 read 45,030*.

On page 8, line 31, *for 6,566,224 read 6,314,324*.

„ 8, „ 32 „ 7,064,625 „ 6,812,725.

„ 29, *under COAL*, against Manbhum-Jherria, in Column 4, *for 2,745,729 read 2,493,729*.

On page 29, *under COAL*, against Burdwan, Raniganj, in Column 4, *for 2,759,033, read 2,759,133*.

On page 29, *under COAL*, against Total, in Column 4, *for 6,566,224, read 6,314,324*.

On page 29, against Grand Total Coal, in Column 4, *for 7,064,625 read 6,812,725*.

On page 30, in last line, in Column 4, *for 7,380,497 read, 7,128,597*.

REPORT

OF THE

CHIEF INSPECTOR OF MINES IN INDIA,

For the year ending 31st December 1903.

INTRODUCTION.

I have the honour to submit the following Report on the Mines in British India, the working and inspection of which are regulated by the "Indian Mines Act, 1901." ("Act No. VIII of 1901").

The Report also gives some particulars of mines and workings that are not regulated by the Mines Act.

There are also a few particulars and details given, especially in Section IV, for the special information of owners, agents, and managers of mines.

The Report is divided into the following sections :—

Section I.—Persons employed.

„ II.—Output.

„ III.—Accidents.

„ IV.—The Mines Act and Rules.

„ V.—General remarks.

Statement I.—Number of mines and workers.

„ II.—Mines opened and closed during the year ending 31st December 1903.

„ III.—Statement of prosecutions instituted under the Indian Mines Act, VIII of 1901, during the year ending 31st December 1903.

„ IV.—Classified statement of fatal and serious accidents in and at mines during the year.

Appendix.—Details of fatal accidents.

The returns were again late, some of them much later than the 1st of March, which is the date on which all the returns should have been received by the Chief Inspector of

Returns.

Mines. The Commissioner of the Burdwan Division reported "considerable difficulty has been experienced in obtaining statistics, particularly in respect of mines situated in the Raniganj sub-division." The Sub-divisional Officer of Gobindpur also reported that "there is always considerable difficulty in obtaining statistics from the mine owners. Figures have not yet been received from nearly six mines, and I am consequently obliged to submit this report without waiting for them."

The Commissioner of the Chota Nagpur Division said "this return is incomplete, as it does not contain statistics for all the mines in the district."

The Deputy Commissioner of Manbhum reports that he has not received statistics from seventy managers and that, therefore, he has sent peons to these managers to get them.

Madras.—"The delay in the submission of this report is due to the fact that the returns and notes were not received from several districts until long after the prescribed date. The report from Gó dávari has not even yet been received."

It appears that vigorous measures will have to be taken to compel the punctual submission of returns.

SECTION I.—Persons Employed.

A.—Persons employed under the Indian Mines Act.

The particulars of number of mines, and of the average daily number of persons employed at them, are given in Statement I, page 26.

It shows that the total number of persons employed at mines under the Act was—

AT ALL MINES UNDER THE ACT.

1903.	1902.	Differences. Decrease in 1903.
Above ground.	Above ground.	Above ground.
Males . . . 20,339	21,272	933
Females . . . 10,633	11,684	1,046
Children . . . 2,908	3,803	900
TOTAL . . . 33,885	36,764	2,879 Decrease above ground.
Below ground.	Below ground.	Below ground.
Males . . . 46,540	53,224	6,684
Females . . . 20,119	21,353	1,234
Children . . . 1,651	2,233	582
TOTAL . . . 68,310	76,810	8,500 Decrease below ground.
GRAND TOTALS 102,195	113,574	11,379 Total decrease.

NOTE.—It is very noticeable that there is a great decrease in every kind of worker.

AT ALL COAL MINES.

1903.	1902.	Differences. Decrease in 1903.
Above ground.	Above ground.	Above ground.
Males . . . 16,792	17,969	1,177
Females . . . 8,559	9,149	590
Children . . . 1,373	1,935	562
TOTAL . . . 26,724	29,053	2,329 Decrease above ground.
Below ground.	Below ground.	Below ground.
Males . . . 36,461	41,717	5,256
Females . . . 15,212	17,009	1,797
Children . . . 1,164	1,726	562
TOTAL . . . 52,837	60,452	7,615 Decrease below ground.
GRAND TOTALS 79,561	89,505	9,944 Total decrease.

AT THE BENGAL COAL MINES.

1903.	1902.	Differences. Decrease in 1903.
Above ground.	Above ground.	Above ground.
Males . . . 15,113	16,226	1,113
Females . . . 8,231	8,887	656
Children . . . 1,310	1,840	530
TOTAL . . . 24,654	26,953	2,299
Below ground.	Below ground.	Below ground.
Males . . . 33,372	38,316	4,944
Females . . . 14,744	16,377	1,633
Children . . . 1,158	1,644	486
TOTAL . . . 49,274	56,337	7,063
GRAND TOTALS . . . 73,928	83,290	9,362

The foregoing figures also show that the great fall in the number of workers, as compared with 1902, occurred principally at the coal mines, and nearly

the whole of it at the Bengal coal mines. Also that 6,684 *less males* were employed below ground, which represents nearly 79 per cent. of the *whole decrease* in workers below ground, or nearly 59 per cent. of the *total decrease* in the number of workers.

The following comparison is also interesting—

BENGAL COAL MINES.

	1903.	1902.	
Number of coal mines . . .	272	280	Decrease of 8 in 1903.
Persons employed . . .	73,928	83,290	Decrease of 9,362 in 1903.
Output of coal . . .	6,566,224	6,269,294	Increase of 296,930 in 1903.

There is something peculiarly interesting in these figures, *if the returns are reliable*, they show a decrease in the number of coal mines and of employés, but an increase in the output of coal.

The following figures may help any investigations into the reasons for these apparent discrepancies.

DECREASE PER CENT. IN THE NUMBER OF EMPLOYÉS IN 1903, AS COMPARED WITH 1902.

Mines.	Above-ground employés.	Below-ground males.	Total Below-ground.	Total above-ground and below-ground.
	Per cent.	Per cent.	Per cent.	Per cent.
1. At all Mines	7·83	12·55	11·06	10·01
2. At all Coal Mines	8·01	12·59	12·59	11·10
3. At Bengal Coal Mines	8·52	12·90	12·53	11·24
4. Giridih Coal Mines	4·68	10·14	9·11	7·93
5. Jherria Coal Mines	Increase 0·26	9·91	6·61	4·20
6. Raniganj Coal Mines	17·15	17·70	19·16	18·52

The *greatest* percentage difference was in the Raniganj coal-field, and the *least* difference was in the Jherria field ; the relative saleable values of much of the coal from the fields probably account for this.

And though the coal trade has been very dull throughout the year, this has been principally indicated by absence of sales for the poorer qualities of coal and the very low prices obtained for the better qualities, so that there has been a fair demand for the best coals at low prices, and this has told greatly in favour of the mines that are able to supply coal of the first quality.

Statement I is drawn up in the order of minerals in such a way that the mineral employing the greater number of persons comes before that employing a less number, so that coal takes the primary position employing 78 per cent. of the total number employed.

The Bengal coal mines employ 73,928 persons or 72 per cent. of the total number of mining employés, and 92 per cent. of the coal mining employés.

The mica mines come next with 9,099 employés of which 5,878 are employed at the Bengal (Hazaribagh) mines.

And that fast-growing industry, manganese, takes a third place with 6,942 workers, of which 4,003 work at the mines in the Central Provinces, and 2,939 at mines in Madras.

Owing, partly, to the dullness of trade, there appears to be, speaking generally, a sufficient supply of labour for the coal mines, though there are mines and small districts where a mining family is the equivalent of valuable property. During good trade a good miner is a person of importance and of great value, and he can then, within limits, claim his own terms, and a great many miners know how to make the most out of the situation. Throughout the past year there has been just a sufficient balance in favour of a scarcity of miners to keep their position a pretty firm one.

There has been at least one fairly stiff strike at the coal mines of Bengal during the year ; it lasted for several weeks, but it is pleasing to be able to say that although both sides contended stoutly they ultimately met at the position of very amicable settlement.

Mr. G. F. Adams, Inspector of Mines, recently made the following remarks on "Labour in coal mines. With the exception of certain mines and districts, labour appears to be sufficiently plentiful to meet the demand for coal to satisfy the present requirements of the trade, but if the coal trade of the country called

for a very largely increased output, shortage of labour would be the first and chief difficulty to be encountered. In Bengal, a certain amount of labour is quartered on or near the mine premises and, for periods varying from a few days upwards, will work at this particular mine. The remainder wanders about a great deal, a few days at a mine here, a few days at a mine there. At nearly all the large collieries the employment of contractors, who provide the labour, is necessary. The coal cutters are paid on the ton, tub, or cubic foot of coal when heaped, and as a rule are paid daily. Certain classes of labour on daily wage are paid either daily or weekly. The coal cutters do not appear to put in more than four days' work a week on an average."

The provision of labourers is the contractor's speciality; he is principally employed for this special purpose, even by large firms who have a large zemindary with its own department for supplying labour. The contract also, of course, includes the doing of certain work—cutting and conveying coal, etc.—by the contractor's employés. Although such contracts have been arranged during the year, dull coal trade is very bad for the contractors.

When miners are paid for their coal output by the "heap" it is generally at a fixed price per 100 cubic feet.

The frequency of the payments, the daily payments demanded by the coal cutters, is the chief—though not the only—stumbling block to the introduction of a system of payments by footage or distance cut—length of gallery driven—which would do so much to put a stop to that very bad and dangerous practice known as "robbing pillars."

In some mining districts, and for some minerals, there is sufficient steady labour; and most of the circumstances and conditions connected with it are also very steady. But at others, at the mica mines in Hazaribagh, and at the Bengal slate mines for instance, there is just a sufficient scarcity of labour to at times lead to little difficulties. The returns show that "the mica mines in the Gaya district are doing fairly well, and it seems the capital has been profitably invested by the owners, who find no difficulty in getting labour. The mines are situated in hilly tracts, and most of the people of the neighbouring villages find employment there. No complaint of ill-treatment was received during the year, as was also the case in previous years."

Also, that in the Gobindpur sub-division "the relations between capital and labour appear to be on the whole satisfactory. Labour being free the miners have full control over the wages. Besides, the supply of labour being inadequate, the colliery managers have every inducement to treat the miners well lest they be gained over by other managers by the prospect of better treatment or higher pay." But during this time of dull coal trade the miners are not in such great request, 31 mines in the Gobindpur sub-division stopped working during the year.

At the coal mines of the Assam Railways and Trading Company of Lakhimpur a considerable number of labourers are employed who are engaged on contracts under the Assam Labour and Emigration Act VI of 1901. And though the relations between the labourer and his employer appear to be, generally, of a most cordial nature, a very sad event happened during the year by which Mr. Williams, a foreman at the Namdang mine, met his death at the hands of a newly arrived coolie. A full account of the murder is given on pages 13 and 14.

At Mohpani, Narsinghpur, Central Provinces, labour is somewhat scarce, and a well organised scheme has been suggested for importing labour as the local labourers are not prepared to work in the mines all the year round. At Balaghat, Central Provinces, labour was very scarce owing to numerous Public Works Department's tank excavations, the extensive sleeper works in Topla, and abundant harvests. If the manganese mines at Manegaon, etc., are to be worked on an extensive scale it will probably be necessary to import labour.

At Khost, Baluchistan, most of the labour is imported, it is scarce in summer, but in winter there is an influx of Afghans who are driven south by the cold. The local people have not taken to mining work, though some do labouring work in the mines (not coal-cutting) in winter.

In Burma (ruby mines), Gaya (mica), and in Bankura (coal), children were not employed in the mines and, in the last named district, none younger than 18 years.

At Warora, no children are employed either above or below ground; and no females are employed below ground.

But at the Wanigaon manganese mine a few very young children were found working at hewing the ore, and objection to this was raised.

At the Dandot Colliery, Jhelum, Punjab, females are not employed below ground.

At the Baluchistan coal mines, females and children are not employed, with the exception of a few boys on the surface at the Khost mines.

At the Nellore mica mines, Madras, children, apparently as young as six years, were found employed in the mines.

The Inspector says:—"I know of no case where there has been any friction or unpleasantness owing to women working with the men below ground. Almost invariably they are relations, and always of the same caste."

The Jherria coal-field.

In the coal mines of Bengal generally, with the exception of the effects of certain restrictions due to their own likes and dislikes, females work freely at most of the mines, and appear to be glad to work and quite hearty and, I think, they work hard as compared with the males. They have some dislike to riding in the shaft in a bucket, and to working at a long distance from the bottom of the shaft or incline, both males and females like to work in a new mine where they can remain very near to the surface and, for similar reasons, they do not like a deep pit.

Females are never employed at hewing the coal, and I have not frequently seen females and children attempting to do such work.

At a few mines children are not employed below ground, and the continuous discouragement during the last 10 years has had a salutary effect as there are not near so many young children to be seen in the mines now as previously, either workers or non-workers, and with a few exceptions the European and the native officials do a little to discourage the employment of children below ground, and of the taking of young children into the mines.

The following is a comparison of the number of children employed below ground during the last two years:—

	1903. Children below ground.	1902. ground.	Decrease for 1903.
At all mines	1,651	2,233	582
At Bengal coal mines	1,158	1,644	486

The wages earned at coal mines are generally very good as compared with work at other mines, except at gold mines where good wages are paid; the wages at mica mines, slate mines, and at some mines in other isolated places are poor. I believe I am well within the facts in saying that during the last 10 years the wages of all classes of workers at the coal mines of Bengal have been increased by about 50 per cent., and that the general condition of the workers—especially in respect to the food consumed, and luxuries—has been vastly improved in that time. In the year 1894 the manager of a large colliery, when speaking of the well-doing of his miners, said that he took care that any miner who was willing to do a fair day's work should get not less than 4 annas per day, and that most of his workpeople got one hot meal every day, as if these workers were exceptionally well off as compared with other miners. I believe that 4 annas a day was almost above the average wage at that time, but now it is not at all uncommon to be told that the miners earn 5 annas, 6 annas, 7 annas, and more than these amounts per day, that a miner and his wife earn Re. 1 per day between them, and so on. And the wages of other labourers have, consequently, risen accordingly.

At the Khost coal mines the workmen earn from 6 annas to rupee 1 per day. (The coal is cut by piecework). And at the Kalat Bolan mines, from 8 annas to 10 annas.

But at other mines the wages are much lower, as shown below:—

WAGES AT MICA MINES IN MONGHYR.

Men.	Women.	Children.
2 to 3 annas, average 2½.	1½ annas.	1 anna.

WAGES AT SLATE MINES IN MONGHYR.

Men.	Women.	Children.
2 to 3 annas.	1 anna 3 pies.	9 pies to 1 anna.

Slate dressers and polishers earn 4 to 6 annas according to contract rates.

WAGES AT THE COAL MINES IN THE DUMKA SUB-DIVISION.

Men. 2 annas.	Women. 1½ annas.
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The rate in the Jamtara sub-division varied from Re. 1 to Re. 1-8 per hundred cubic feet of coal raised.

"The wages of coolies in mica mines range from anna 1 to annas 4-6 each per diem, but those who work in coal mines get annas 6 to annas 8 each per day."

Hazaribagh.

"The average earning of male coolies varies from 3 annas to 6 annas per day, and that of women and children is 2 annas to 2 annas 3 pies per day."

Palamau.

"The wages in the mica mines were paid in cash or grain." Payment in grain does not appear to be a satisfactory payment.

Madras, Nellore.

"At the Haddabanatta gold and copper mine the wages per coolie varied from annas 8 to 1 rupee."

Madras, Coimbatore.

At the Vizagapatam manganese mines the wages paid are—men 2½ annas, women 1¼ anna, children ½ to ¾ anna. The contract rates are worked out to give these wages if an ordinary fair day's work is done; some of the better coolie gangs earn more.

"The daily wages of men are 2½ annas per man per diem and 1¼ anna per woman (or child) per diem. The wages are increased during the harvest season which lasts about four months in the year."

At the mines in the Nilgiris.

The foregoing rates refer to the amounts that are paid to the workers in money, but those amounts do not by any means represent the whole of the earnings, especially at

Wages and earnings.

the coal mines because, in addition to cash payments they get numerous gifts and allowances, such as certain quantities of coal for use or sale, free houses, land for cultivation, gifts of money at the times of certain pujas and ceremonies, medical aid and medicines for the whole family, and in some cases there are also certain advantages as to bazar prices, etc.

Speaking generally, I believe the health of the mine workers was very fairly good. The following few exceptions may be noted.

Health.

There was an outbreak of cholera in Jherria that disorganised the labour a great deal, and led to much correspondence and discussion on the subject of cleaning and protecting a large tank that was believed to be the principal cause. However, it has at last been arranged to thoroughly clean and repair the Huriladih tank, and to have its water protected from careless pollution. Also, the medical officer found the Jherria Bazar to be in an extremely bad condition, and it is largely a place of resort for the workpeople of the surrounding districts.

There were also a good many deaths from cholera at and near to Sodepore (Raniganj field) and, as a consequence, tanks and wells received a good deal of special attention. Then there is the old foe, malarial fever, that many mining districts have to grapple with, and in a way that varies a great deal with time of the year, kind of season, position and other circumstances.

From Madras it is reported that "the general health of mining employes appears to have been good except in the Nellore District. Malarial fever is reported to be generally prevalent in the neighbourhood of the mines in the Nellore District, and its unusual severity during the year under report is attributable to the excessive rainfall. The coolies' lines do not appear to be kept clean, and the Collector is issuing a general circular on the subject. The Collector has been asked to submit a detailed report as to the expediency of introducing regulations to secure proper ventilation and lighting of the tunnels in which men were employed in a few mines." "It is, I believe, a matter of experience that the turning up of the soil in certain localities results in outbreaks of fever and possibly some such cause may partially account for the malaria noticed in connection with these mines which are not generally situated in particularly unhealthy localities."

Godavari District.—At the Perakonda graphite mine the general health of employes is bad owing to the unhealthiness of the locality.

The bustis are so filthy at Katni, Jabalpur, Central Provinces, that a set of rules was proposed for keeping the bustis belonging to the lime quarries in proper sanitary condition. And a gomastia makaddam has been appointed to each busti on Rs. 2 and Rs. 3 per month, and made responsible for keeping the places clean.

Sanitation, and housing.

Madras, Nellore.—The coolies' lines of the mica mines were not kept clean.

Govindpur, Jherria coal-field.—"The sanitary conditions in mines appear to be on the whole satisfactory. The managers are making every effort to improve the sanitary condition of their coolies' lines, and it is largely due to the oppositions of the miners themselves that they have not been still further improved. The Sonthals, for instance, much prefer their hovels of mud and thatch to the far more sanitary pucca dwellings which most of the managers have erected. On almost every colliery now there are rows of these neat brick huts, well tiled against the rains, which should prove beneficial to the health of the coolies. The prejudice against these pucca huts is, I think, rapidly dying out among the better class of coolies. In one or two collieries there has been competition to secure them. The difficulty still remains of keeping those good huts clean, but the managers for their own sakes, to prevent outbreaks of sickness, have every inducement to do their best to retain them in a sanitary condition."

At numerous European collieries in Bengal, there have recently been built large numbers of good, roomy, and nicely arranged coolie huts. They are built with good bricks and mortar, and roofed in one or more of the following ways—by a brick and mortar arched roof, by khaprail tiles, by flat tiles, by corrugated iron with a good covering of clay or cement or mortar, by a thatched roof. And, as a part of the scheme, a large number of wells have been sunk for drinking water. Yet I have recently seen numbers of such good huts uninhabited, because the new workmen for whom they were built insisted on living in huts with thatched roof only; and sometimes for other, apparently, feeble reasons.

Another good thing in connection with these huts, and others, is the nice little verandah which is a provision and a protection in several ways.

This matter of housing, and of wells, has probably advanced as much as anything I can name since mines inspection work was first started in 1894; still there is much more to be done, a great extension of the improvements required and, especially would I point out, the necessity for greater attention being given to the provision of an ample supply of clean water for *washing purposes* as well as for drinking and cooking purposes.

Khost, Baluchistan.—"There is always much malaria (especially amongst Punjabi employés) during the Autumn, some cases of Pneumonia in winter, occasionally a case or two of small-pox, and in June last Typhus, which was epidemic in Baluchistan, spread to Khost and caused many deaths." It is hoped, by restricting rice cultivation, to reduce the malaria.

Probably at all the mines of every kind, with the exception of a very few, some provision is made for medical attendance when required, as well as for subsistence allowance for those off work from injury received. A doctor with a dispensary is provided at many mines; but some of the larger mines have a better class of doctors with suitable hospitals; on the other hand, some small native mines have arranged for the services of the doctor employed at the neighbouring European mine, so that, in this respect, the mining people are probably as well and often much better provided for than any other class.

Suitable ambulance and other first aid appliances are kept at a few mines and, if details could be given, I believe the number and variety of the sick and injured cases that receive treatment by the mine officials during a year would be a surprise.

At Khost there is a hospital, with isolation wards for infectious diseases; free food is given to in-patients, and free medicines to all applicants. A conservancy staff is also maintained.

B.—Persons employed at workings that are not comprised by the Act.

The number of persons employed is given in Table 5, page 16, for the few workings for which returns have been received. There does not appear to be anything to require comment in the returns for persons employed.

SECTION II.—Output.

There is great scope for differences of opinion and, consequently, differences of action in relation to the troublesome question of "what is a *mine*?" Section 3(d) of the Mines Act defines the parts that are included by the term mine—*when they belong to the mine*—, but the difficulty is usually found in determining for a particular case whether all such parts belong to one mine or to more than one or, in other words, what mine works and parts form one mine, and when and under what circumstances do mine works and parts become two or more mines? Cases also arise as to when two or more mines become merged into one mine.

I am referring to this matter, in this place, because it probably accounts for some of the great differences and discrepancies to be found in the returns for numbers of mines, numbers opened, and numbers of mines closed; but the great cause of confusion in giving the numbers of mines being worked, etc., is that of *names* of mines. In my 1895 report I said that "the term mine may include all parts that are connected together below ground, belong to the same owner, and are ordinarily described by the same name." But this definition has failed to fully fulfil its purpose because mines *and parts of mines* are named after the name of the Mouza that encloses the mine or part of the mine, so that the number of mines returned is largely regulated by the number of shafts or inclines that are in different mouzas. The crudeness of this system has been pointed out for over 10 years, but the bad effects will be more keenly felt now that we must have the definiteness required by the Mines Act and Rules; but the numbers of mines returned, especially of coal mines, will represent an indefinite number of distinct mines until the system has been improved.

Returns of "Mines."

Statement I, page 26, gives the numbers of mines, and Statement IV, page 29, gives the output.

These returns show the following comparative figures:—

	MINES.		OUTPUT.	
	1903.	1902.	1903.	1902.
Bengal Coal Mines	272	280	6,566,224	6,269,294
Total Coal Mines	295	305	7,064,625	6,790,507
Bengal Mica Mines	251	53	692	923½
Total Mica Mines	237	91	1,005	...
Central Provinces Manganese Mines	15	10	107,598	75,866
Madras " " " "	8	14	63,625	68,171
Total Mines	646	528	...	...

There was, apparently, a small reduction in the number of coal mines, but an increase in the output of coal.

An abnormal increase in the *number* of mica mines, but this was due to errors of figures, the actual number of mines was probably not much different.

The limestone and rotten-stone quarries, and the mines of clay, in Gobindpur, all remained closed during the year.

The output of manganese is fast increasing, and the industry is quickly growing in importance. In Nagpur five applications have recently been made for mineral concessions for manganese mining, in addition to applications for prospecting licenses. Of course, the depth of the manganese quarries has gone on increasing with the working, so that 11 of them have become deep enough during the year to be included as mines under the Mines Act.

At Murwara, in the Jabalpur district, there were 15 limestone quarries, and one Fuller's earth mine. And thirty-five thousand tons of limestone were taken from the Katni lime quarries.

Three hundred cwts. of Asbestos were mined from a mine in the District of Merwara, but it did not appear to be worth much as its value was given as Rs. 20.

In the Agencies of Bundelkhand and Bhopawar there were 29 diamond mines, and 13 diamond mines (10 belonging to the State and 3 private mines) were opened during the year. And there were also 33 iron ore mines in the Bundelkhand District. One manganese mine in the Bhopawar Agency gave an output of 6,800 tons.

In the Ladakh Wazarat of the Jammu and Kashmir State were mined Borax, "Fooli," Ladakhi salt, and gold.

The following table gives the output and mines that are not comprised by the Mines Act.

TABLE No. 1.

OUTPUT OF MINERALS FROM NATIVE STATES, AND FROM OTHER WORKINGS THAT ARE NOT COMPRISED BY THE MINES ACT.

MINERAL.	Province and Mineral Area.	Number of mines and of quarries.	OUTPUT.	
			1903.	1902.
COAL	Central India—Umaria	2	193,277 Tons.	171,533 Tons.
	Hyderabad (Deccan)—Singareni	2	362,733 "	455,424 "
	Kashmir—Ladha	6	999 "	.....
	Rajputana—Bikaner	1	21,764 "	16,503 "
	TOTAL	11	578,773 "	643,465 "
SALT	Burma . . . . .	...	.....	20,170 Tons.
	Bengal . . . . .	...	.....	119 "
	Bombay . . . . .	...	.....	381,610 "
	Madras . . . . .	...	.....	358,450 "
	Northern India—Kohat Quarries	4	15,598 Tons.	14,662 "
	" Nandi	2	4,685 "	5,306 "
	" Sambhar Lake, etc. . . . .	...	.....	161,884 "
	Kashmir—Ladakh	1	1 "	.....
	TOTAL	7	20,284 "	942,201 "
GEMS { AMBER DIAMOND JADE	Upper Burma	...	37 Cwts.	29 Cwts.
	Central India—Panua and Charkhadi	29	195 Carats.	.....
	Upper Burma—Mamon, Tawmaw and Hwetta	3	1,402 Cwts.	1,758 "
GOLD	Kashmir—Ladakh	1	106 Oz.	.....
	Hyderabad—(Deccan) Lingsugur	1	3,810 "	.....
	Mysore—Kolar	14	604,530 "	524,983 Oz.
	TOTAL	16	608,446 "	524,983 "
IRON ORE	Central India—Panua, etc.	33	3,042 Tons.	1,674 Tons.
	Bengal—Barakar	...	67,215 "	72,100 "
GRAPHITE	Travancore—Velanaad	3	3,394 Tons.	4,575 "
PETROLEUM	Assam—Digboi . . . . .	...	.....	.....
	Burma—Yenangyaung and Yenangyat	...	78,048,344 Gals.	54,848,980 Gals.
A K I K (CORNELIAN STONES).	Bombay—Rajpipla State	...	182 Tons.	.....
BORAX	Kashmir—Ladakh	...	34 Tons.	.....
*FOOLI	Kashmir—Ladakh	...	50 Tons.	.....
MANGANESE	Central India—Kajlidungri	1	6,800 Tons.	.....
CLAY	Bengal—Raneegunge	6	9,378 "	8,135 Tons.

SECTION III.—Accidents.

A.—At mines under the Act.

The following Table, No. 2, shows the number of fatal accidents classified according to the mineral, and the number of males and females killed. It may be noted that there were no children killed during the year. Also that the total accidents were 68, and total deaths 81 which, as compared with the previous year, is an increase of 7 accidents and 10 deaths.

TABLE No. 2.

FATAL ACCIDENTS AND DEATHS DURING 1903 CLASSIFIED ACCORDING TO THE MINERAL WORKED.

MINERAL.	Province and Mineral area.	Number of separate accidents.	NUMBER OF DEATHS.								GRAND TOTAL.	
			BELOW GROUND.				ABOVE GROUND.					
			Males.	Females.	Children.	Total.	Males.	Females.	Children.	Total.		
COAL	Assam	1	1	...	...	1	...	...	...	...	1	
	Bengal	{ Giridih	5	7	3	...	10	...	...	...	...	10
		{ Jherria	24	17	4	...	21	5	1	...	6	27
		{ Raneegunge	24	18	5	...	23	2	1	...	3	26
	TOTAL	53	42	12	...	54	7	2	...	9	63	
	Central Provinces—Warora	1	1	...	...	1	...	...	...	...	1	
	Punjab	1	1	...	...	1	...	...	...	...	1	
	Baluchistan—Khost	1	1	...	...	1	...	...	...	...	1	
	TOTAL	57	46	12	...	58	7	2	...	9	67	
	Upper Burma—Mogok	2	1	...	...	1	1	...	...	1	2	
RUBIES, SAPPHIRES AND SPINELS.	Upper Burma	1	1	...	...	1	...	...	...	...	1	
GOLD ORE	Central Provinces—Katni	1	1	...	...	1	...	...	...	...	1	
LIMESTONE	Madras	1	...	...	...	...	1	...	...	1	1	
MANGANESE ORE	Bengal	6	5	2	...	7	2	...	...	2	9	
MICA	GRAND TOTAL	68	54	14	...	68	11	2	...	13	81	

The following was received late:—Kangra (slate), Punjab, 1 accident and 1 death.

Other comparisons are conveniently shown thus :—

Mines.	Accidents.	Percentage of total accidents.	Deaths.	Percentage of total deaths.
At Bengal Coal Mines	53	79 per cent.	63	Nearly 78 per cent.
At all " " " " " "	57	83 " "	67	82½ " "
At Mica Mines	6	Nearly 9 " "	9	11 " "
At all Mines	68	...	81	...

Table No. 3 shows the accidents and deaths as classified according to causes, and the numbers for comparison, in respect to each cause, for the two previous years.

Table No. 4 provides the means of comparing the death rates, from accidents, in the various mining and mineral areas.

TABLE No. 3.
FATAL ACCIDENTS AND DEATHS CLASSIFIED ACCORDING TO CAUSES.

CAUSES OF ACCIDENTS.	1903.				1902.				1901.							
	Num- ber of separate acci- dents.	DEATHS.			Num- ber of separate acci- dents.	DEATHS.			Num- ber of separate acci- dents.	DEATHS.						
		Males.	Females.	Children.		Total.	Males.	Females.		Children.	Total.	Males.	Females.	Children.	Total.	
BELOW GROUND.																
I.—FALLS IN MINE.																
1. Falls of roof, stone or coal	10	7	4	...	11	18	20	2	1	23	24	31	3	1	35	
2. " side	8	7	2	...	9	8	9	...	...	9	19	20	5	...	25	
3. " coal in working places	5	9	1	...	10	...	...	...	...	...	...	...	...	...	...	
TOTAL	23	23	7	...	30	26	29	2	1	32	43	51	8	1	60	
II.—IN SHAFTS.																
4. Overwinding	...	2	...	...	...	1	2	...	...	2	3	5	...	...	5	
5. Ropes and chains breaking	...	2	...	...	2	...	4	5	...	...	...	2	1	1	...	2
6. Whilst ascending or descending by machinery	...	...	...	...	...	...	...	...	...	5	...	...	...	...	...	
7. Falling into shaft from the surface	7	7	...	...	7	3	4	...	...	4	4	4	...	...	4	
8. Falling from a part of the way down	...	...	...	...	...	...	...	...	...	...	1	1	...	...	1	
9. Things falling from surface	1	1	...	...	1	3	2	1	...	3	2	2	...	...	...	
10. Things falling from a part of the way down	1	1	...	...	1	3	4	...	...	4	2	2	...	...	2	
11. Miscellaneous	2	2	...	...	2	...	...	...	...	...	...	...	...	...	...	
TOTAL	13	13	...	...	13	14	17	1	...	18	14	15	1	...	16	
III.—MISCELLANEOUS BELOW GROUND.																
12. Explosions of fire-damp	2	3	...	...	3	1	1	...	...	1	1	3	1	...	4	
13. Suffocation by gases	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
14. By explosives	2	3	...	...	3	...	...	...	...	...	4	4	...	...	4	
15. Irruptions of water and falling into water	2	1	3	...	4	...	...	...	...	...	...	...	...	...	...	
16. On inclined and engine planes	8	7	3	...	10	4	2	2	...	4	11	8	2	1	11	
17. By trams and tubs	3	2	1	...	3	2	1	1	...	2	1	...	1	...	1	
18. By machinery	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
19. By other causes	2	2	...	...	2	2	...	2	...	2	...	...	...	...	...	
TOTAL	19	18	7	...	25	9	4	5	...	9	17	15	4	1	20	
TOTAL BELOW GROUND	55	54	14	...	68	49	50	8	1	59	74	81	13	2	96	
IV.—ABOVE GROUND.																
20. By machinery	1	1	...	...	1	5	5	...	...	5	1	1	...	...	1	
21. Boilers or steam pipes bursting	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
22. On railways or tramways be- longing to mine	4	3	1	...	4	3	3	...	...	3	5	3	1	1	5	
23. Miscellaneous	8	7	1	...	8	4	3	...	1	4	...	...	...	...	...	
TOTAL ABOVE GROUND	13	11	2	...	13	12	11	...	1	12	6	4	1	1	6	
GRAND TOTAL	68	65	16	...	81	61	61	8	2	71	80	85	14	3	102	

NOTE.—The figures for 1901 include 12 accidents and deaths at mines not under the Act.

TABLE No. 4.

PERSONS EMPLOYED, NUMBER OF DEATHS, AND DEATH-RATES PER 1,000
PERSONS EMPLOYED.

MINERAL.	Province and Mineral Area.	AVERAGE NUMBER OF PER- SONS EMPLOYED DAILY DURING 1903.			NUMBER OF DEATHS DURING 1903.			DEATH-RATES PER 1,000 PERSONS EM- PLOYED.		
		Below ground.	Above ground.	Total.	Below ground.	Above ground.	Total.	DURING 1903.		
								Below ground workers taken separ- ately.	Above ground workers taken separ- ately.	Below and above ground.
COAL	Assam—Makum . . .	793	462	1,255	1	...	1	1.26	...	0.79
	Baluchistan—Khost . .	434	214	648	1	...	1	2.30	...	1.54
	„ Thal Chotiali . .	4	2	6	...	...	...	...	...	...
	„ Quetta . . .	56	14	70	...	...	...	...	...	...
	„ Kalat Bolan . .	69	31	100	...	...	...	...	...	...
	TOTALS . . .	563	261	824	1	...	1	1.77	...	1.21
	Bengal—Daltonganj . .	823	412	1,235	...	...	...	...	...	...
	„ Giridih . . .	7,739	2,952	10,691	10	...	10	1.29	...	0.93
	„ Jherria . . .	17,789	10,325	28,114	21	6	27	1.18	0.58	0.96
	„ Rajmahal . . .	10	24	34	...	...	...	...	...	...
	„ Raniganj . . .	22,913	10,941	33,854	23	3	26	1.00	0.27	0.76
	TOTALS . . .	49,274	24,654	73,928	54	9	63	1.09	0.36	0.85
	Burma—Lashio . . .	...	...	...	...	...	...	...	...	...
	„ Thingadaw . . .	...	...	...	...	...	...	...	...	...
	„ Shwebo . . .	32	48	80	...	...	...	...	...	...
	TOTALS . . .	32	48	80	...	...	...	...	...	...
MICA	Central Provinces—Mohpani .	578	231	809	...	...	...	...	...	...
	„ Pench River . .	8	19	27	...	...	...	...	...	...
	„ Warora . . .	655	580	1,235	1	...	1	1.52	...	0.80
	TOTALS . . .	1,241	830	2,071	1	...	1	0.80	...	0.43
	Punjab—Dandot . . .	934	469	1,403	1	...	1	1.07	...	0.71
	„ Kalabagh . . .	...	...	...	...	...	...	...	...	...
	TOTALS . . .	934	469	1,403	1	...	1	1.07	...	0.71
	TOTALS (COAL) . . .	52,837	26,724	79,561	58	9	67	1.09	0.33	0.84
	Bengal	3,464	3,000	6,464	7	2	9	2.02	0.66	1.39
	Madras	1,724	588	2,312	...	...	...	...	...	...
	Rajputana	...	323	323	...	...	...	...	...	...
	TOTALS (MICA) . . .	5,188	3,911	9,099	7	2	9	1.34	0.51	0.98
	Central Provinces . . .	3,556	447	4,003	...	...	...	...	...	...
	Madras	2,179	760	2,939	...	1	1	...	1.31	0.34
	TOTALS (MANGANESE ORE.) . . .	5,735	1,207	6,942	...	1	1	...	0.82	0.14
MANGANESE ORE	Central Provinces—Katni . .	1,150	734	1,884	1	...	1	0.86	...	0.53
	„ Salt	1,189	1.2	1,311	...	...	...	...	...	...
	Madras—Vajrakarur . . .	...	...	...	...	...	...	...	...	...
	Upper Burma—Mogok . . .	1,063	413	1,476	1	1	2	0.94	2.42	1.35
	TOTALS (GEMS) . . .	1,063	413	1,476	1	1	2	0.94	2.42	1.35
LIMESTONE SALT GEMS—DIAMONDS, RUBIES, SAPPHIRES AND SPINELS.	Central Provinces—Katni . .	1,150	734	1,884	1	...	1	0.86	...	0.53
	„ Salt	1,189	1.2	1,311	...	...	...	...	...	...
	Madras—Vajrakarur . . .	...	...	...	...	...	...	...	...	...
	Upper Burma—Mogok . . .	1,063	413	1,476	1	1	2	0.94	2.42	1.35
	TOTALS (GEMS) . . .	1,063	413	1,476	1	1	2	0.94	2.42	1.35
SLATE	Bengal	95	150	245	...	...	...	...	...	...
	Punjab	162	86	248	...	...	...	...	...	...
	TOTALS (SLATE) . . .	257	236	493	...	...	...	...	...	...
	Madras, Upper Burma and Bombay	213	212	425	1	...	1	4.69	...	2.35
	Bengal—Kalimati . . .	570	170	740	...	...	...	...	...	...
	Lower Burma	...	...	...	...	...	...	...	...	...
	Madras—Salem	...	65	65	...	...	...	...	...	...
	Madras—Bhadraclalam . .	14	27	41	...	...	...	...	...	...
	Madras—Salem	14	13	27	...	...	...	...	...	...
	Bengal—Rajdoha	...	...	...	...	...	...	...	...	...
	Upper Burma—Pangyaung .	80	45	125	...	...	...	...	...	...
	Central Provinces	...	...	...	...	...	...	...	...	...
	Punjab	...	...	...	...	...	...	...	...	...
	Rajputana	...	6	6	...	...	...	...	...	...
	TOTALS (SLATE) . . .	257	236	493	...	...	...	...	...	...
GOLD-ORE IRON-ORE TIN-ORE MAGNESITE GRAPHITE COBUNDUM COPPER-ORE LEAD-ZINC-ORE CLAY ALUM SHALE ASBESTOS	Madras, Upper Burma and Bombay	213	212	425	1	...	1	4.69	...	2.35
	Bengal—Kalimati . . .	570	170	740	...	...	...	...	...	...
	Lower Burma	...	...	...	...	...	...	...	...	...
	Madras—Salem	...	65	65	...	...	...	...	...	...
	Madras—Bhadraclalam . .	14	27	41	...	...	...	...	...	...
	Madras—Salem	14	13	27	...	...	...	...	...	...
	Bengal—Rajdoha	...	...	...	...	...	...	...	...	...
	Upper Burma—Pangyaung .	80	45	125	...	...	...	...	...	...
	Central Provinces	...	...	...	...	...	...	...	...	...
	Punjab	...	...	...	...	...	...	...	...	...
	Rajputana	...	6	6	...	...	...	...	...	...
	TOTALS (SLATE) . . .	257	236	493	...	...	...	...	...	...
	FOR ALL MINES UNDER THE ACT .	68,310	33,885	102,195	68	13	81	0.99	0.3	0.79

GENERAL REMARKS ON THE FATAL ACCIDENTS.

NOTE.—*The references are to the Appendix. Pages 31 to 39.*

53 accidents caused	1 death each	.	.	.	53 deaths.
9 „ „	2 deaths „	.	.	.	18 „
1 accident „	5 „	.	.	.	5 „

Total 68 accidents.

Total 81 deaths.

One female went into fenced-off galleries and was killed. There are several points in connection with this that might be discussed, but I think most managers will agree to the statement that 'where females work near to where there are usually men about, as at loading stations, there are times when they will go into any prohibited part unless suitable retiring places are provided.' It is, therefore, a matter that is well worth careful consideration.

Females.

Then, again, there is the question of the extra supervision that female workers require. A total of 16 females were killed during the year. Seven of them were killed by falls of coal and stone under circumstances that show that females cannot well look after their own safety below ground. Accident No. 7 is a case most directly to the point, where three females sat to eat their food immediately under very dangerous roof. This matter of supervision is one requiring close attention.

The particulars of the accidents show that many of the male workers are as unfit to take proper care of themselves as are the females. This is shown by the large proportion of the accidents that were clearly *avoidable*, or *preventable*, or due to *proper precautions not having been taken*. About half of the total accidents and deaths can be placed under the foregoing descriptions; of these there were 5 accidents due to pillar-robbing or working coal at prohibited parts of the mine, and in 2 of the cases they had gone to work in parts that were properly fenced off. This is a very important matter, and a practice that it does not appear to be easy to stop, but I will repeat frequently made suggestions that much good may be done by keeping down the distances that coal has to be carried to within reasonable distances; and if the coal cutting could be paid for partly by distance cut or footage, and partly by weight or measure, instead of paying entirely on the latter system, which is almost the only way at present, much of the inducement for pillar-robbing would be taken away. I believe this is on trial at a few mines.

Avoidable accidents.

Then there is the question of *examination of place of work*. Even the accidents that are set down to pillar-robbing would probably not have happened if the persons concerned had carefully examined the condition of the places where they were beginning to work and their surroundings. But, in addition to these, there were 6 other accidents involving 7 deaths due to the deceased, and others, working in places that were so dangerous that a very little examination and practical experience would have convinced them were quite unsafe to remain in. Whatever examinations are made, or required to be made, by the officials, it should be the first duty of every workman to see to his own safety and, to a reasonable extent, to the safety of the females working with or near him. I have been trying for many years to bring about this very desirable condition, and I look to and trust to the mine officials doing all that can be reasonably expected of them in this direction.

Then there were 4 additional accidents, involving 6 deaths, where both officials and workmen had failed to make such examinations as the circumstances required. In these cases also the least one can say, is, that the accidents were avoidable. In two of these cases the Manager punished the official concerned, but I hope the new General Rules will help to make the punishment to be adequate to the offence in future.

There were 2 accidents that were clearly due to the carelessness or thoughtlessness of the deceased (numbers 30 and 31); 1 clearly due to ignorance and inexperience (No. 55); 1 due to temporary insanity (No. 27); and 1 that was said by some to be a case of suicide (No. 60).

There were 6 accidents, involving 10 deaths, which would probably have been avoided if the workmen (in most of the cases and the officials in others) had taken the precautions or the care that the circumstances required.

The 8 accidents numbered 32, 52, 56, 61, 63, 65, 66, and 67 clearly come under this classification, and I am directing attention to each of them in the hope that it will do some good.

Dangerous practices.

There were 6 accidents that come within this description. Such cases, most often, give suspicions of lax supervision.

Working or acting contrary to orders. There were 4 accidents, involving 6 deaths, that would probably not have happened if sufficient stop-blocks had been provided on and near the top of the inclines. This matter requires more attention on the part of mine officials, and I wish to strongly direct their attention to these accidents (numbers 43, 44, 45 and 49) as a warning, because mine managers so often argue as to the safety of their inclines and postpone the provision of sufficient stop-blocks until an accident forcibly brings home to them the deficiency. It will also be noted that 2 accidents were caused by wire ropes breaking, and 1 through the breakage of a tub drawbar; also that 2 (numbers 26 and 33) were due to very primitive appliances being in use: comment on these should not be necessary.

Explosions. Two accidents, involving 3 deaths, were caused by explosions of very small quantities of fire-damp. The presence of the fire-damp was, apparently, unknown to anyone. One accident, at which two men were killed and another very seriously injured, was caused by gunpowder prematurely exploding. There was much doubt in this case as to whether it happened in the manner stated by the survivor.

Inundation. There was one inundation of a small mine in which a man and a woman were drowned. Much could be said relative to this accident on standing water, boring in advance, the necessity for accurate plans, etc., but it will perhaps be sufficient to say that the new General Rules should be of great assistance in connection with such matters.

Accident No. 29 happened before the deceased had begun work for the day, and was certainly due to him not taking proper care.

Medical treatment. One female, accident No. 5, had her right leg badly fractured and cut near the ankle; the colliery doctor wanted to amputate the limb and believed the woman would have soon recovered. But the relatives carried her home to their village and would not allow anyone but their own Santhal *village doctor* to treat her either surgically or medicinally. I went twice to the village to see the poor woman, but will not attempt to describe the so-called treatment she received, and the pain she suffered. But the points I wish to mention are (1) that interference in such cases, either by the mine officials or the doctors, is almost out of the question; and (2) that when a person dies from improper treatment, or sheer neglect, it hardly comes within the scope of a fatal accident.

In the case of accident No. 22, no doctor was procured to treat the injured man before his death.

The injured man, accident No. 39, lost his left eye and was bruised and burned in several places, but he did not receive proper medical treatment until I called on the mine owner in respect to the matter.

MURDER OF AN OFFICIAL IN THE NAMDANG COAL MINE, ASSAM.

Although this sad event cannot be properly classed amongst the fatal accidents, I think this is a suitable place to refer to it, because it fully illustrates one of the possible dangers, and a danger of the most serious and saddest kind, that mine officials are liable to face, and especially European Managers who have to supervise the work of such a heterogeneous lot of workmen as is employed in Assam.

I quote the following descriptive report which gives, apparently, a full and fair account of the principal facts.

"Facts relating to the death of Mr. John Williams, Assistant at Namdang Colliery, Assam, on December 19th 1903."

Mr. Williams was thirty-five years of age, and had been at these collieries for eight years. On the 19th of last December about midday, he entered, with one of the Sirdars, a thirl, or road driven up in the coal, where three coolies were working. One of these had only been employed at the Colliery for eleven

days. Mr. Williams, according to the evidence as it came out afterwards, complained of the small amount of work these men had done, and the Sirdar made a complaint about this new coolie. Mr. Williams gave the man a slight tap with his stick, and spoke to him angrily. He then told the Sirdar to go on, and said that he would stay there a little and see that this man worked properly. According to the evidence of the other two coolies, he crouched down by his side, and urged him on to work in angry tones.

The Sirdar said he shortly afterwards heard shouting, and went up. He found the lights out. Then he saw Mr. Williams doubled up on the side of the road, and unconscious. He took him to the surface, and got him home, but he never regained consciousness, and died shortly after he was carried into his house.

The Doctor found two marks on the side of his head, both evidently inflicted with a pick.

Subsequently, the new coolie confessed that he drove the pick into Mr. Williams' head.

He has been tried for murder, and condemned to death.

The Judge, when summing up to the Jury, said it was evident from the evidence, that all Williams had done to the man was in the nature of very mild chastisement, and he pointed out that, when the coolie was first interviewed by the Magistrate, he said, 'The Sahib spoke angrily to me, but did not touch me,' and that therefore all Mr. Williams could have done was to give him a slight pat, and that it could not be looked upon in the nature of a blow."

SERIOUS NON-FATAL ACCIDENTS.

As a great many mine Managers still profess to be ignorant of the interpretation of the term "Serious," and to have doubts as to the kind of accident for which Section 17 of the Mines Act requires a notice to be sent of "Serious bodily injury," I am repeating the interpretation for their benefit.

"Interpretation of the term 'Serious' as applied to accidents classed as such under section 17 of the Indian Mines Act, 1901 (VIII of 1901)."

"An injury is said to be serious which involves or will in all probability involve loss of, or permanent injury to any limb or to the sight or hearing, or the fracture of any limb, or enforced absence from work for 20 days, or which is declared by any medical officer to be serious."

NUMBER OF SERIOUS ACCIDENTS REPORTED.

It may be seen from Statement IV, page 29, that there were 84 serious accidents reported involving injury to 77 males and 10 females, or a total of 87 persons. The following brief table shows the causes:—

CAUSE.	Number of accidents.	INJURED.		
		Males.	Females.	Total.
Falls in mine . . .	23	21	2	23
In shafts . . .	2	2	...	2
Miscellaneous below ground . . .	41	37	7	44
Surface . . .	18	17	1	18
TOTALS .	84	77	10	87

Although a serious injury that is comprehended by the above definition would appear to be somewhat formidable, there were a number of those cases reported that were really simple accidents, causing slight injuries, and yet were comprised by the term 'serious.' There were others, the causes of which were of the most simple and ordinary kind that might happen at almost any kind of work. I mention this, because, the number of reported accidents may be considered moderately great.

Many of the remarks made on the fatal accidents are equally applicable to these. Thus three happened whilst "robbing" coal pillars, and one of the injured went through

Below ground.

a fence for the purpose. One was struck on the foot by felling roof that he had pulled down to make the place safe. One Sirdar had his thigh fractured by falling stone that he was examining and testing with a stick; and another official knocked his head against a prop, and hurt his temple, by hurriedly avoiding falling coal that fell as soon as he began to test it. Four accidents, five persons injured, were caused by the premature explosion of gunpowder, three of these accidents were at Mica mines. One man had his finger bitten by a horse; and another had a finger fractured by a coolie accidentally throwing a piece of coal on it. A Sirdar had his leg cut by a piece of coal rolling against it; a coal cutter had his foot seriously injured by a piece of coal that fell from a basket of coal that he was carrying; and a female fell, with her right hand under her, and so fractured her forearm. A man was working a hand pump, and another man who was carrying a basket past him knocked his hand with the basket and so fractured his finger; another had his thumb fractured by a piece of coal rolling on it that he was filling into a basket; and another coal cutter struck his pick into his own foot; and still another wounded his foot and fractured a toe in the same way.

A pointsman got two fingers pinched whilst coupling wagons; and an idler had his foot injured by a wagon whilst sleeping with his foot on the rails. A surface hook-man was struck by moving tubs whilst trying to steal coal from one of them; a "bandy-man" had his leg fractured in three places by falling off a bullock bandy at a Madras mine; and a gate-man had his collar bone fractured by a horse running against his gate and knocking him down.

GENERAL REMARKS ON ACCIDENTS.

The Inspector of mines for Jherria has made the following remarks on the causes of accidents.

1. "There are three causes which chiefly contribute to a normal increase of accidents.

(1) Jherria is, practically, a new field, and every year there is a greater total length of mine galleries, and old galleries have not been abandoned to the same extent as in the Raneegunge field, where there are many old workings.

(2) Every year there is a large increase of absolutely untrained labour introduced, which is ignorant of mining, and has to be taught.

(3) Every year more machinery is being introduced. Of the 24 accidents last year, 6 were by falls of roof and sides, 6 in shafts, 5 on engine haulage planes, and 7 by other causes.

2. The prevention of accidents from falls of roof and sides, especially in the working places, is almost entirely a question of inspection by competent people daily, and several times a day. The Government Inspectors can do very little directly to stop these accidents, for what is safe in the morning may be unsafe in the afternoon—as the work goes forward—and fresh roof and side is exposed every hour. Indirectly the Inspectors do all they can to impress upon Managers the necessity of having a sufficient staff to overlook the collieries.

3. The average Mine Sirdar is no more to be trusted to do his work properly, unless looked after, than any other native of his class, and it is for this reason that I always press Managers to institute daily reports to be signed in order that these men may the more realize their responsibility.

4. Accidents in shafts, and by machinery and structures, are nearly always a question of having proper and sufficiently strong materials of all sorts, and here the Government Inspectors can, at any rate, strongly recommend. But in all cases, report books included, the Inspector is often met by the remark 'well, we are waiting to see what these new rules demand,' and I have to say that only by the enforcement of rules, to strengthen the Inspectors' hands, do I look for improvement. The Inspector himself does not care to recommend alterations, especially structural alterations, which in the end the rules may not require. He has no right to go beyond the Act.

5. Following on general rules, some simple special rules may be framed. There is at present, in Jherria, a great reluctance on the part of Managers to prosecute labour for any offences. They say the labour promptly deserts to the next Colliery. When rules are passed the Inspectors will have power to make

all Managers keep them, and what is equally important, have them kept by all concerned."

B.—Accidents at workings not under the Indian Mines Act.

The Mysore State. The number of deaths from accidents at mine in the Mysore State were—above ground 11, below ground 58, total 69.

At the coal mines in the Hyderabad (Deccan) State there were 15 fatal accidents, and these caused 29 deaths; of the total deaths, 13 are returned as having been caused by the subsidence accident on the 10th of June : also 5 by falls of stone, 5 by runaway tubs, 2 by falling down shafts, and 1 by explosives.

There were also 25 serious non-fatal accidents, at which 30 people were injured. Of these, 5 were injured by the subsidence of the 10th of June, 11 by runaway and other tubs, 4 by falls, 3 by explosives, and 1 by a kibble being overwound.

At the Gold Mine.—There was 1 fatal accident, by falling down a shaft at the Hutti (Nizams) Gold Mine.

Table No. 5 gives number of persons employed, number of deaths, and death-rates per 1,000 persons employed, at those Native States for which returns have been received.

TABLE No. 5.
FATAL ACCIDENTS IN NATIVE STATES.

MINERAL.	Province and Mineral Area.	NUMBER OF PERSONS EMPLOYED.			NUMBER OF DEATHS.			DEATH-RATES PER 1,000 PERSONS EMPLOYED.		
		Below ground.	Above ground.	Total.	Below ground.	Above ground.	Total.	Below ground.	Above ground.	Below and above ground.
COAL	Hyderabad (Deccan)—Singareni.	4,832	1,527	6,359	29	...	29	6'00	...	4'56
	Kashmir—Ladda	119	99	218	1	...	1	8'40	...	4'58
	TOTAL	4,951	1,626	6,577	30	...	30	6'05	...	4'56
DIAMOND	CENTRAL INDIA—BUNDEL-KHAND, PANNA	618	7,203	7,821	3	...	3	4'85	...	0'38
GOLD-ORE	Hyderabad (Deccan),—Lingsugur. Hutti.	300	540	840	1	...	1	3'33	...	1'19
	Mysore—Kolar	17,626	9,729	27,355	58	11	69	3'29	1'13	2'52
	TOTAL	17,926	10,269	28,195	59	11	70	3'29	1'07	2'43
	TOTAL	23,495	19,098	42,593	92	11	103	3'91	0'57	2'41

SECTION IV.—The Mines Act, and Rules.

Orders, Notices, Prosecutions, etc.

During the year under report there have been none of the following :—

1. Orders made under Section	6.	(d)	of the Indian Mines Act, 1901.
2. Notices given	15.	(1)	" " " " "
3. Orders made	15.	(2)	" " " " "
4. Formal inquiries held under Section	18.	(1)	" " " " "
5. References made	21.	(3)	" " " " "
6. Prosecutions	22. & 23		" " " " "
7. References made	26.		" " " " "
8. Decisions given	27.		" " " " "
9. Exemptions	29.		" " " " "

But there have been four inquiries held in Bengal, by the Inspectors of Mines, under the Land Acquisition (Mines) Act, 1885.

In No. 302—95-5, dated Calcutta, the 27th January 1904, the Government of India notified that—"In exercise of the power conferred by section 6, clause (d), of the Indian Mines Act, 1901 (VIII of 1901), the Governor-General in Council is pleased to direct that Appeals from orders of the Chief Inspector of Mines in India under the Indian Mines Act, 1901 (VIII of 1901).

from every order passed by the Chief Inspector of Mines in India under section 6, clause (d) of the Indian Mines Act, 1901 (VIII of 1901), an appeal shall lie to the Advisory Mining Board, if a Mining Board has been constituted under section 9 of the said Act for the province or part of the province where the mine in respect of which the order was made is situate, and elsewhere to the Chief Controlling Revenue Authority, as defined in section 2, clause (8), of the Indian Stamp Act, 1899 (II of 1899)."

On the 15th of March 1902, a Mining Board was constituted for the Lower Provinces of Bengal, and it held five meetings in the same year. In 1903, the Mining Board held four meetings, at which were considered the draft General Rules, other proposed rules, head-quarters of the Inspectors of Mines, and other references of a general character.

This Mining Board is now the authority to whom appeals shall lie for mines in the Lower Provinces of Bengal, "from every order passed by the Chief Inspector of Mines in India under section 6, clause (d), of the Indian Mines Act, 1901 (VIII of 1901)."

In November 1902, the Indian Mining Association appointed a "Technical Sub-Committee" of mining engineers and mine managers, to assist the Committee of the Association, especially in the examination of proposed mining rules. The Sub-Committee consists of six managers and engineers representing, respectively, the Raneegeunge, Jherria, and the Giridih coal-fields.

In Resolution No. 18—17-2, of the 20th May 1899, the Governor-General in Council was pleased to prescribe revised "Rules for the grant of licenses by local Governments, to explore and prospect for minerals, and of mining leases in British India." In Bengal, these rules have been most useful in the mica mining districts, and they have done a great deal towards putting that class of mining on a firm basis.

This is another matter about which many mine managers profess ignorance when they have neglected to comply with the requirements. Section 22 (XI) of the above last-mentioned rules stipulates that "the lessee shall, without delay, send to the Collector a report of any accident which may occur at or in the said premises."

In Notification No. 3352—45-32, of the 27th December 1901, and "in exercise of the power conferred by section 20, subsection (2), clause (h), of the Indian Mines Act, 1901 (VIII of 1901), and in supersession of the rule issued with Notification No. 3053, dated the 15th November 1901, the Governor-General in Council is pleased to make the following rule prescribing the authority to whom, the form in which and the time within which, notices under section 17 of the said Act shall be given, namely :—

"When any accidental explosion or other accident occurs in or at a mine causing loss of life or serious bodily injury, the owner, agent or manager of the mine, shall give notice of the accident to the Chief Inspector of Mines, Calcutta, by despatching to the Magistrate of the District a notice in the form set forth below, within twenty-four hours of the occurrence of such accident." The form is the one now generally used.

In Circular No 2594—102-3, dated the 7th August 1902, the Government of India acquiesced "to the proposal that mine managers should be permitted to send accident reports to the Sub-Divisional Officers instead of to the District Magistrates, when this course is more convenient."

It is principally owing to managers not being quite sure as to what officer the notices should be sent, that the accident notices are occasionally sent to quite the wrong officer and are, consequently, delayed.

On the 10th of March 1904, by Notification No. 864—68-20, and in exercise of the powers conferred by section 20 of the Indian Mines Act, 1901 (VIII of 1901), the

Governor-General in Council was pleased to make rules for application to all coal mines in British India. The rules are comprised by the following sections or divisions.

- | | |
|-----------------------------------|-------------------------------|
| I.—Single shafts and outlets. | V.—Explosives. |
| II.—Raising and lowering persons. | VI.—Ventilation and lighting. |
| III.—Roads and working places. | VII.—Miscellaneous. |
| IV.—Plans. | |

There are numerous coal mines in British India at which some of the requirements of the rules will be quite new,—such for instance as brakes and indicators, examination and reporting regularly on machinery and shafts, regular and proper inspections and reports of every part of the mine, fencing entrances to places not in actual use, signalling and manholes, accurate plans, the provision of an adequate amount of ventilation, fencing at shafts, ambulances or stretchers with splints and bandages, and keeping at the mine “copies of all rules made under the Indian Mines Act, 1901.” These are a few of the requirements, the adoption or provision of one or more of which will be a novelty at almost every coal mine in India, and I have especially directed attention to them, in the hope that managers will at once use their best endeavours to bring the working of their mines well up to the requirements of the law.

I add the following very telling remarks from Jherria, because the subjects are of great importance, and have reference to several of the requirements of the rules.

“1. These are now required to be kept by the new general rules, but, unfortunately, the boundaries of the properties or takings are not required to be shown on them, and I fear that, in the future, this may lead to serious accidents, involving loss of life on a large scale, owing to standing accumulated water. Although standing water is not much in evidence at present in the newer mines it is almost sure, from the fact that nearly all mines are being worked to the dips, to prove a prolific source of danger in the future.” *See also Section V, page 23.*

“2. In the Jherria coal field there are many dangerous unfenced quarries at which these new rules must now be complied with.”

“3. The new General Rules require that a mine, and every working or travelling part of it, must be ventilated so that smoke is cleared away. This will necessitate at many mines very much improved methods of ventilation to those formerly in vogue.”

“4. The European staff at the larger collieries make periodical inspections, but at a very few collieries is their time not taken up with office work, superintending of the loading of the coal, etc., to such an extent, as to make them depend very largely on the native staff for the safety of the underground workings. When the new proposed rules for managers and under-managers are completed, it is hard to see how the under-manager, who is at present generally known as the assistant, is going to properly carry out his duties, if he has to spend several hours a day on the loading wharf.”

The native staff make inspections. At some collieries there is a Native Mining Inspector, who acts as an overman, and under him there are various sirdars.

Where there are contractors, there are sirdars employed by them, in addition to the company's sirdars, but their time is of necessity mostly taken up with getting the work out of the labour; and in connection with this, the practice of letting a contractor pay all the sirdars, there being none under the direct employment of the colliery owner, is to be deprecated. The object of the contractor, and those employed by him, is to produce as much coal as possible, and the sirdars who have to see to the safety of the mine, should be paid by the owner direct.

With reference to new manganese workings in Nagpur, Central Provinces, the subjects have been advanced of “the simplification of methods of acquisition and settlement of compensation for land required by licensees in the exercise of their mining or prospecting rights.”

Inspectors, and Inspection work under the Indian Mines Act.

Mr. George A. Stonier, the Chief Inspector of Mines, took six months' sick leave from the 10th June to the 9th December 1903 ; and during that time I officiated as Chief Inspector of Mines in addition to my own duties.

Mr. Stonier, owing to ill health, resigned his appointment as Chief Inspector of Mines on the 7th of April 1904.

Mr. G. F. Adams, Inspector of Mines in India, worked energetically and well throughout the year, and did a great deal of valuable work.

I was continuously and fully employed throughout the year.

I made a special inquiry, inspections and report, that lasted for several days of the end of July and the beginning of August, into the subsidences and fatal accidents at the Yellandu Coal Mines, Hyderabad (Deccan).

The following are some details of the inspections made, and other work done, by each Inspector.

Inspections.

MR. STONIER :—The work done by Mr. George A. Stonier includes the following inspections :—

District and Mineral.		Inspections both below ground and above ground.	Inspections above ground only.	Number of mines inspected.	Mines inspected more than once.
Bengal	Coal . .	28	...	26	1
"	Mica . .	13	...	13	...
Burma	Coal . .	2	...	2	...
"	Gold . .	3	...	3	...
"	Lead and zinc .	5	...	5	...
"	Ruby . .	1	...	1	...
Central Provinces	Limestone .	14	...	14	...
Madras	Manganese .	5	...	5	...
TOTALS .		71	...	69	1

He also investigated and reported on 3 fatal and 2 serious accidents : total 5.

Office work, interviews, meetings of Mining Board, etc., and travelling during six months of the year.

MR. ADAMS :—The work done by Mr. G. F. Adams includes the following inspections :—

District and Mineral.		Inspections both below ground and above ground.	Inspections above ground only.	Number of mines inspected.	Mines inspected more than once.
1. Bengal	Coal . .	87	11	79	6
2. Central Provinces	" . .	6	...	2	2
3. " "	Manganese	4	...	4	...
4. Baluchistan	Coal . .	12	...	11	1
5. Bombay	Gold . .	1	...	1	...
6. Punjab	Coal . .	6	...	2	1
7. "	Salt . .	6	2	4	2
8. "	Alum . .	1	...	1	...
9. "	Slate . .	1	...	1	...
10. Assam	Coal . .	14	1	9	7
11. "	Limestone	8	...	8	...
12. Burma	Tin . .	21	...	21	...
TOTALS .		167	14	143	19
		181			

Made one inquiry and report under the Land Acquisition (Mines) Act. Also investigated and reported on 12 fatal accidents and 11 serious accidents: total 23, was travelling on 117 days, office work, etc.

MR. GRUNDY:— The work of Mr. James Grundy includes the following inspections:—

District and Mineral.	Inspections both below ground and above ground.	Inspections above ground only.	Number of mines inspected.	Mines inspected more than once.
1. Bengal Coal	142	91	105	51
2. „ Mica	11	2	12	1
3. „ Slate	13	4	7	7
4. Hyderabad (Deccan) Coal (Not comprised by the Act.)	13	2	4	2
TOTALS .	179	99	128	61
	278			

Made three inquiries and reports under the Land Acquisition (Mines) Act. And attended once as a witness at the Magistrate's Court, Raneegunge. Also investigated and reported on 49 fatal accidents, and 23 serious accidents: total 72. Office work, interviews, Meetings of Mining Board, travelling, etc.

Number of Inspections by District and other Officers, 1903.

District and Mineral Area.		NUMBER OF MINES INSPECTED.		
		Once.	Twice.	Twice or more.
<i>Coal.</i>				
Bengal—				
Bankura	Raneegunge	1	...	...
Birbhum		1	...	...
Burdwan		...	...	...
Manbhum, Jherria		14	...	...
Hazaribagh, Giridih		1	...	...
Palamau, Daltonganj		1	...	...
		18	...	...
Central Provinces—Narsinghpur, Mohpani		1	...	...
Burma—Shwebo, Kabwet, etc.		...	...	1
Assam—Lakhimpur, Makum		4	4	...
Punjab—Jhelum, Dandot		1	...	...
Baluchistan		10	...	1
	TOTAL AT COAL MINES	34	4	2
<i>Mica.</i>				
Bengal—Gya		2	...	...
„ Hazaribagh, Koderma		...	1	...
Madras—Nellore		3	6	5
		5	7	5
<i>Manganese.</i>				
Central Provinces—Nagpur		1	...	...
Madras—Vizagapatam		...	2	...
		1	2	...
<i>Iron.</i>				
Bengal—Singhbhum, Turamdih		1	...	...
<i>Limestone.</i>				
Central Provinces—Jubbulpore, Katni		3	1	...
<i>Gold</i>				
Bombay—Dharwar, Kabulayat Katti		..	1	...
<i>Gems, etc.</i>				
Burma—Rubies, etc., Mogok		...	..	1
	GRAND TOTAL	44	15	8

NOTE.—Medical officers made some of the inspections of mines in their districts.

SECTION V.—General Remarks.

A Committee has been appointed, by His Honour the Lieutenant-Governor of Bengal, to consider a letter from the Government of India on the subject of the establishment of a School of Mines in Bengal, and some proposals in regard to practical instruction being given in mining in the Mines' districts. It is believed that the mining school, and the practical instruction to be given in the mining districts, will be of very great benefit to mining students, and to the officials of the mines and, indirectly, to all employed at the mines.

I also wish to put the valuable information on record that the Government of India have decided to establish a number of Technical Scholarships, each of the value of £150 a year in addition to tuition fees and travelling expenses. They are to be given with a view to provide for natives of India the higher technical education which may qualify them to assist in promoting the improvement of existing native industries and the development of new industries wherever this may be possible. Each scholarship is tenable for an average period of two years, and are in the first instance proposed to be used for the encouragement of the mining industry in Bengal.

The workings of the mines throughout India are at a very moderate depth. Some of the Kolar gold mines have the deepest workings in India, and the coal mines of Bengal come next in depth where the deepest shaft is about 650 feet deep. A very large proportion of the total number of mines are at depths varying from a few feet to about 350 feet, the number of mines of greater depth than this being comparatively few. Partly as a consequence of the shallow positions of the coal seams, with little more than porous sandstone in the strata above the seams, the majority of the coal mines are damp to wet with water, and the coal gives off very little fire-damp.

There is very little, comparatively, of any kind of explosives used for extracting the coal. Gunpowder (English powder, and country-made powder), dynamite with detonators, and one or two of the other high explosives are used for sinking shafts, tunnelling through dykes in coal mines, and regularly for blasting material throughout metalliferous mines.

The use of the primitive buckets for winding workmen and coal in the shafts is decidedly decreasing, while the use of well equipped cages fitted with guides is steadily increasing, as is also the use of mechanical haulage along the inclines.

The principal work in the coal mines has been all along the driving of galleries to extract the coal, and to form coal pillars that are to be left unworked to support the roof. When these coal pillars are permanently left unworked, as they often are, especially at the Native mines, there is probably from 20 to 30 per cent. of the whole coal lost. With the exception of at the best European mines, the coal pillars have usually been made too small and the galleries too large for the final extraction of the pillars to be safely carried out, and in many of such cases the coal pillars are reduced as much as is safely possible, with the result that the overlying strata subside and large quantities of coal are lost for ever. Several such cases of subsidence happened during the year, one of which set down two railway sidings. There is much room for improvement in the laying out and working of collieries with a view to safely working out something approaching 90 per cent. of the whole coal, and much might be said in continuation of this part of the subject, but reference to two points will suffice. The first reason for the foregoing states of the coal mine workings is ignorance and want of experience. It has always been customary to work the coal in that way at all the mines of which the managers and owners have any experience, and they do not know of any better way, or if they do, the work is so dangerous that they fear to try any system that is strange to them; or the mine has been laid out and worked by others and left to them to make the best of it as they find it. The next important point is, that the daily output of coal per person employed, and per miner, or from each working place is very small indeed as compared, for instance, with English mining practice. In England, the total output of coal for the year, per person employed below ground, is about 348½ tons, or about

1 $\frac{1}{8}$ tons per day for each person employed below ground, supposing they work, on an average, 300 days in the year. Whereas, the figures for last year were :—

For Jherria	154 $\frac{1}{4}$ tons for the year per person employed below ground.
For Raneegunge	131 $\frac{3}{4}$ „ „ „ „ „
For all Bengal	133 $\frac{1}{4}$ „ „ „ „ „

which, allowing 220 working days in the year for each person, works out as follows :—

For Jherria 0·7 ton per underground worker per day, or 60 per cent. of the English figure per day, or 44 per cent. of the English figure per year.

For Raneegunge 0·6 ton per underground worker per day, or 51·7 per cent. of the English figure per day, or 37·8 per cent. of the English figure per year.

For all coal mines in Bengal 0·6 ton per underground worker per day, or 51·7 per cent. of the English figure per day, or 38 per cent. of the English figure per year.

The differences between the comparative percentages per day, and per year, arise from taking 300 as the number of days worked by an English miner per year against 220 working days for the Indian miner. So that for any given output per year, an Indian mine requires at least 2 $\frac{1}{2}$ times the number of underground workers that would be required in England, and the bad effects of this are many. It requires a large mine with a great number of working galleries and other working places for a small output, at each set of shafts and inclines a large number of people are employed, but little coal is brought out. So that without having a large output of coal, managers often find it difficult to keep ready a sufficient number of working places for the output required and they then, sometimes, drive galleries wider and make pillars smaller, or adopt other devices to keep up the output that they would avoid doing, if they did not feel driven to do what they know is bad work. Numerous cases could be actually cited.

When the mine has been well laid out, the galleries driven of moderate width, and the coal pillars made reasonably large, an attempt may be made, in most cases with confidence, to safely work out a large percentage of the whole coal. This is now being done at a number of mines, but it is dangerous work if not done well. In order to keep the men and the mine safe, it requires constant supervision with a great deal of observation, best discretion, good judgment, hard work, and a liberal supply of timber. A manager who is now successfully doing this kind of work, has well said that “ I have found from experience that it is far safer to superintend such work personally with the help of the native sirdars. The native staff are good people to work with, but want constant watching and careful stiff supervision, and if one is not in a position to exercise his authority, which at times becomes difficult owing to the great competition, he is at a loss as service is plentiful, food cheap, and wages high.”

During the work of extracting coal pillars, large numbers of props, and timber cogs, have to be used to support the roof and overhanging coal and, generally, to keep the workings safe. The withdrawal of these timbers, after they have served their purpose, is a very dangerous but necessary proceeding. With a view to lessening the danger of this work, one firm has just purchased three sets of *patent prop-drawing apparatus* that are believed to be very good and effective when carefully used, but they have not yet had a full trial in India.

The peculiar dangers attending the work of coal-getting at the Margherita colliery, has become well known from other reports. In March 1903 it was suggested that, possibly, loss of life might be minimised if the mouth of the openings, into which the coal is dropped and where it is filled into trams, were timbered with timber frames, and the frames carried on into the opening, so that the workers might be under cover when filling away the coal. This was accordingly tried and, what were considered to be strong and efficient timber frames were erected in the openings and extended as the coal heaps were being filled away. But, for important reasons, which I need not enlarge on here, the frames did not lessen the dangers but probably added to them, in the opinion of the mine officials, and their use has therefore been given up.

There are still coal mines being worked in Bengal without any plan of the mine being kept, and there are a great number of mines being worked without any *accurate* plan being kept, and in most cases, these inaccurate plans do not show anything of the mine workings up to anything approaching a recent date. Accurate plans will henceforth be enforced by the General rules, but most of the effect of the past omission is beyond remedy. Mines have been worked and abandoned, or the coal has been worked as much as appeared possible over large areas, and the lease then given up; there are many such old workings without a plan ever having been made, whose positions are not properly known and cannot now be ascertained, but many of them contain large accumulations of standing water that form standing and uncertain dangers to all who may ignorantly, or incautiously, work near them. This important matter was also referred to in Section IV, page 18.

There are always a few mines in which the standing and other coal is on fire but, at present, I cannot recall any very serious case. I have, during the year, found several cases of the workpeople making and using fires below ground as a luxury; but the surprise is directed towards the officials, rather than the people who may not realize the danger, for the Manager always professes not to know that such a dangerous practice prevails.

Although there is not much fire-damp in Indian coal mines, it is often necessary to use safety lamps, and more often to keep a few such lamps ready at the mine in case of emergency. Safety lamps may therefore be in use on account of the presence of fire-damp, or as a precautionary measure, or owing to a combination of these reasons; and these form the reasons for a few safety lamps being kept at many mines, for the frequent use of such lamps at several mines, and their occasional use at others; and for the exclusive use of safety lamps throughout a very few large mines, and in certain districts of a few other mines. It will probably be news to Indian mine authorities to know, that at the collieries of one large firm about 2,400 safety lamps are in daily use, that four of the company's mines are worked with safety lamps to the total exclusion of naked lights, and that one of the several reasons given for using safety lamps is "to avoid kerosene oil smoke and damage to ventilation." The lamps used here are the Marsaut lamp with double gauze. These safety lamps, in their best form, are probably the safest and most useful of the many kinds of safety lamps.

In the English mines electricity has become so extensively used for lighting, hauling, coal-cutting, pumping, and for other purposes that it became necessary to inquire into its use, and the dangers attending it. Consequently, in October 1902, His Majesty's Principal Secretary of State for the Home Department, appointed a Committee of inquiry who examined 56 very representative witnesses. The Committee have submitted a most thorough and valuable report, and have also drafted a large number of "Rules for the installation and use of electricity in mines." These proposed rules are now undergoing the combined process of reduction and revision. The Report contains much very valuable information and suggestions. This matter is of present importance to India, because we have just a few electrical installations for lighting, coal-cutting, and drilling purposes.

I may also just note that compressed air is also used, to a small extent, for driving coal heading machines, etc.

Endless rope haulage is installed at three collieries, *viz.*, (1) at Warora, in the Central Provinces; (2) at Jamadoba, in the Jherria coal field; and (3) at Raniganj.

At Warora the tubs are hauled up an incline to the pit bottom only, and are taken up the pit in cages.

At Jamadoba the tubs are hauled right up two of the main inclines to the surface and on to the screens. This installation is quite new and it will be interesting to see how it compares with the usual main rope haulage out of inclines, (1) with regard to the comparative cost, and (2) with regard to the comparative

amount of coal which can be raised at one incline per day. It is possible that the endless rope may prove to be the best method of dealing with a large output from one incline. The endless ropes haul out of the side levels as well as up the inclines, the branch being worked off the main rope by clutch gearing. And there are also two landings or attaching points in the No. 4 incline. The tubs are attached to the ropes by means of a simple and effective clip that automatically releases the tubs at the ends of the inclines. The inclination of the seam is 1 in 8, rope speed 2 miles an hour, and the plough steel wire ropes are $2\frac{1}{2}$ inches in circumference. The driving pulleys are the Thorncliffe clip type, 8 feet diameter. In the inclines, self-acting stop-blocks have been, or are being, fixed at intervals of 50 feet, to arrest any runaway full tub that has from any cause become detached from the ropes. The length of one of the hauling inclines is 1,200 feet, and that of the branch haulage 400 feet.

At the same (Jamadoba) colliery, there are screening, cleaning, and loading plants of a kind that is new and novel to India. The Coal screening. plant consists mainly of (1) mechanical tippler for coal tubs, (2) dust-screening jigger, (3) screening jigger, (4) picking band. The action is briefly as follows—The coal tubs, on being detached from the endless rope, are pushed into the tippler which tips the coal on to the dust-screening jigger, the dust being thus separated from the rubble and steam coal, and the dust falls into a side-tipping tub in which it is conveyed to the coke ovens. The rubble and steam coal passes on to the screening jigger, where the rubble is separated from the steam coal and passes through also into a tipping tub in which it is conveyed to the stocking ground. The steam coal passes on to the picking band where, as it moves along, stone and other ‘gangue’ material is picked out before the coal passes on to the hinged shoot which delivers it into the railway wagon. The shoot is hinged telescopically so as to slip into the doorway of a covered wagon, or equally well, load open wagons as may be required. At the No. 4 pit, when both screens are at work, and sufficient coal available, 5 to 6 wagons an hour can be loaded.

Wherever noticed, the Inspectors invariably ask for a stop-block, (in addition to the stop-block at the top of the “brow”) Stop-blocks at Inclines. between the top of the “brow” and the mouth of the incline tunnel. The want of these was the cause of two fatal accidents in the Jherria coal field in 1903 and, considering that the shunting, etc., of tubs at the tops of inclines has all to be done by native labour, and that if the stop-block at the incline top is carelessly left open there is nothing to stop a runaway tub, or journey of tubs entering the mine, this second stop-block is an obviously necessary precaution. It should be placed far enough down the “brow” to enable the whole journey to be over the bend of the “brow,” and the rope tight, before it is opened to let the empty journey down into the mine.

On the 8th July 1902, the Commissioners for the Inspection of Steam Boilers issued a Circular No. 206, containing instructions to boiler-owners and importers with reference to compensating rings and safety valves. It required the “fitting of a second safety valve to all boilers, second one preferably to be of the lock-up type, and also of fitting compensating rings round all openings on boilers;” and its orders were to come into operation on the 1st January 1903. The Committee of the Indian Mining Association took up this matter, and it was unanimously of the opinion that these orders, so far as colliery boilers were concerned, were vexatious and unnecessary and, accordingly, protested strongly “against the innovation.” A lengthy correspondence ensued and the Commissioners in one letter pointed out that “The Committee are mistaken in thinking that there is no record of boiler explosions in Bengal. It was due to a serious explosion at Seebpore colliery, in which several coolies and the native manager were killed, that the Boiler Act was extended to Colliery Districts.”

The Association replied that “the Boiler Act was extended to Colliery Districts in January 1888.” “And if throughout that long period, of something like 15 years, the danger of accident has been, in the opinion of the Commissioners, sufficiently minimised without the precaution, the Committee fail to see

how its necessity can be justified now." I think that the record of freedom from boiler explosions, as hereby shown, is a matter to be very proud of. The "compensating rings" are strengthening rings round manholes, and other such holes, where the boiler plates become weakened by having the holes cut into the plates.

These mines are worked in the crudest and most primitive manner; the blasting is very often carried out in dangerous ways, very large numbers of shots stemmed and lighted at one time, iron stemming rods, etc., used for charging the shot holes, misfired shots unrammed and, generally, too little care taken in storing, carrying and using the explosives. Numerous dangerous holes called 'mines' are made and then left unfenced. The so-called ladders or means for getting into, and out of, the mines are of the crudest form, generally of insufficient length, and questionably safe. Sufficient quantities of suitable timber can now be much more easily obtained than has been the case hitherto, so that there is now no excuse for not providing ample ladders. And the tenure of the leases of the mines are now much more permanent under the revised Mining Rules, so that it is reasonable to hope that there will soon be an all-round improvement in the systems of working these mines.

JAMES GRUNDY,
Chief Inspector of Mines in India.

STATEMENT I.
NUMBER OF MINES AND WORKERS.

Name of District.	Number of mines within the scope of the Act.	NUMBER OF MINES.		NUMBER OF MINES INSPECTED DURING THE YEAR.		AVERAGE DAILY NUMBER OF PERSONS EMPLOYED IN THE MINES.								GRAND TOTAL.
		Worked by steam.	Not worked by steam.	Once.	Twice or more.	ABOVE GROUND.				BELOW GROUND.				
						Males.	Females.	Children (under 12).	Total.	Males.	Females.	Children (under 12).	Total.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A.—COAL.														
Bengal—Hazaribagh, Giridih	9	5	4	...	4	2,155	618	179	2,952	5,436	2,218	90	7,739	10,691
„ Manbhum, Jherria	115	89	26	78	7	6,109	3,557	659	10,325	10,622	6,510	657	17,781	28,114
„ „ Raniganj	26	17	9			625	358	26	1,009	1,494	501	9	2,004	3,013
„ Bankura „	3	...	3			10	8	...	18	118	57	...	175	193
„ Birbhum „	1	1	...			3	6	...	9	16	12	...	28	37
„ Burdwan „	110	101	9			5,926	3,539	429	9,894	14,962	5,309	401	20,672	30,566
„ Santhal Parganas, Raniganj.	2	2	...	74	47	6	5	...	11	21	13	...	34	45
„ Santhal Parganas, Rajmahal.	4	...	4			17	7	...	24	6	4	...	10	34
„ Palamau, Dalton-ganj.	2	2	...			262	133	17	412	697	125	1	823	1,235
TOTAL	272	217	55	152	58	15,113	8,231	1,310	24,654	33,372	14,744	1,158	49,274	73,928
Central Provinces—Chindwara.	4	2	2	...	...	12	7	...	19	4	4	...	8	27
„ Narsingpur.	1	1	...	...	1	199	32	...	231	413	165	...	578	809
„ Chanda	1	1	...	...	1	477	103	...	580	655	...	...	655	1,235
TOTAL	6	4	2	...	2	688	142	...	830	1,072	169	...	1,241	2,071
Punjab—Jhelum	2	2	...	1	1	450	...	19	469	928	...	6	934	1,403
Assam—Lakhimpur	4	4	...	2	7	269	161	29	459	499	280	...	779	1,238
„ Khasi and Jaintia Hills.	1	...	1			3	...	...	3	14	...	...	14	17
TOTAL	5	4	1	2	7	272	161	29	462	513	280	...	793	1,255
Baluchistan—Sibi (Khost)	2	2	...			199	...	15	214	434	...	...	434	648
„ Thal Chotiali.	1	...	1	10	1	2	...	...	2	4	...	...	4	6
„ Quetta	2	...	2			14	...	...	14	56	...	...	56	70
„ Kalat Bolan	3	...	3			31	...	...	31	69	...	...	69	100
TOTAL	8	2	6	10	1	246	...	15	261	563	...	...	563	824
Burma—Shewbo	2	2	...	2	...	23	25	...	48	13	19	...	32	80
GRAND TOTAL (COAL)	295	231	64	167	69	16,792	8,559	1,373	26,724	36,461	15,212	1,164	52,837	79,561

B.—MICA.

Bengal—Monghyr	8	...	8	...	...	32	23	5	60	62	...	...	62	122
" Hazaribagh	238	7	231	24	1	979	874	883	2,736	2,572	469	101	3,142	5,878
" Gaya	5	...	5	...	...	73	78	53	204	170	89	1	260	464
TOTAL	251	7	244	24	1	1,084	975	941	3,000	2,804	558	102	3,464	6,464
Madras—Nellore	28	10	18	...	...	260	51	227	538	846	749	129	1,724	2,262
" Nilgiris	1	...	1	...	...	45	5	...	50	...	...	...	...	50
TOTAL	29	10	19	...	...	305	56	227	588	846	749	129	1,724	2,312
Rajputana—Ajmer-Merwara.	7	...	7	...	...	156	119	48	323	...	...	...	...	323
GRAND TOTAL (MICA)	287	17	270	24	1	1,545	1,150	1,216	3,911	3,650	1,307	231	5,188	9,099

C.—MANGANESE ORE.

Central Provinces—Nagpur	10	...	10	3	...	110	67	6	183	1,813	1,461	86	3,360	3,543
" Bhandara	2	...	2	...	...	11	19	10	40	20	5	10	35	75
" Balaghat	3	...	3	1	...	62	124	38	224	90	71	...	161	385
TOTAL	15	...	15	4	...	183	210	54	447	1,923	1,537	96	3,556	4,003
Madras—Vizagapatam	8	...	8	5	...	385	252	123	760	1,477	702	...	2,179	2,939
GRAND TOTAL (MANGANESE ORE.)	23	...	23	9	...	568	462	177	1,207	3,400	2,239	96	5,735	6,943

STATEMENT I—continued.

NUMBER OF MINES AND WORKERS—continued.

Name of District.	Number of mines within the scope of the Act.	NUMBER OF MINES.		NUMBER OF MINES INSPECTED DURING THE YEAR.		AVERAGE DAILY NUMBER OF PERSONS EMPLOYED IN THE MINES.								GRAND TOTAL.
		Worked by steam.	Not worked by steam.	Once.	Twice or more.	ABOVE GROUND.				BELOW GROUND.				
						Males.	Females.	Children (under 12).	Total.	Males.	Females.	Children (under 12).	Total.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
D.—LIMESTONE.														
Assam	...	...	...	8	...	...	...	...	...	...	...	...	...	...
Central Provinces—Jubbulpur.	15	...	...	15	14	...	342	331	61	734	544	556	50	1,150
TOTAL	15	...	...	15	22	...	342	331	61	734	544	556	50	1,150
E.—SALT.														
Punjab—Shahpur	1	...	1	1	...	11	2	...	13	27	24	...	51	64
„ Jhelum	2	...	2	1	1	105	4	...	109	549	426	110	1,085	1,194
„ Mianwali	1	...	1	...	1	...	...	...	...	53	...	...	53	53
TOTAL	4	...	4	2	2	116	6	...	122	629	450	110	1,189	1,311
F.—GEMS.														
Burma—Mogok (Rubies, etc.)	3	3	...	1	...	413	...	...	413	1,063	...	...	1,063	1,476
G.—SLATE.														
Bengal—Monghyr	3	...	3	...	7	90	30	30	150	95	...	...	95	245
Punjab—Gurgaon	1	...	1	...	...	20	...	16	36	12	...	...	12	48
„ Kangra	1	...	1	1	...	15	15	20	50	135	15	...	150	200
TOTAL	5	...	5	1	7	125	45	66	236	242	15	...	257	493
H.—GOLD.														
Bombay—Dharwar	1	1	...	1	...	102	13	15	130	107	...	...	107	237
Madras—Nilgiris	2	...	2	...	...	30	...	...	30	76	...	...	76	106
Burma—Katha	1	1	...	2	...	52	...	...	52	30	...	...	30	82
„ Myitkyina	1	1	...	1	...	...	...	...	...	...	...	...	...	...
TOTAL	5	3	2	4	...	184	13	15	212	213	...	...	213	425
I.—IRON ORE.														
Bengal—Singbhum	3	...	3	...	...	150	20	...	170	230	340	...	570	740
J.—TIN ORE.														
Burma—Mergui	...	...	...	21	...	...	...	...	...	...	...	...	...	...
K.—MAGNESITE.														
Madras—Salem	1	...	1	...	...	30	35	...	65	...	...	...	...	65
L.—GRAPHITE.														
Madras—Godaveri	1	...	1	...	...	27	...	...	27	14	...	...	14	41
M.—CORUNDUM.														
Madras—Salem	1	...	1	...	...	3	10	...	13	14	...	...	14	27
N.—LEAD-ZINC ORE.														
Burma	1	...	1	5	...	40	5	...	45	80	...	...	80	125
O.—CLAY.														
Central Provinces	1	...	1	...	...	...	...	...	...	...	...	...	...	...
P.—ALUM.														
Punjab—Bunnu	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Q.—ASBESTOS.														
Rajputana—Ajmer-Merwara.	1	...	1	...	...	4	2	...	6	...	...	...	...	6
GRAND TOTAL (All Mines.)	646	254	392	259	81	20,339	10,638	2,908	33,885	46,540	20,119	1,651	68,310	102,195
				340										

STATEMENT II.

MINES OPENED AND CLOSED DURING THE YEAR ENDING 31ST DECEMBER 1903.

PROVINCE.	District.	Number of mines opened.	Number of mines closed.
A.—COAL.			
BENGAL	Manbhum	6	31
	Birbhum	1	...
	Burdwan	3	17
	Sonthal Parganas	...	2
TOTAL		10	50
PUNJAB	Jhelum	...	1
ASSAM	Khasi and Jaintia Hills*	1	...
BURMA	Shwebo	1	1
GRAND TOTAL		12	52
B.—MICA.			
BENGAL	Monghyr	8	5
	Hazaribagh	65	36
	Gaya	1	1
MADRAS	Nellore	7	20
RAJPUTANA	Nilgiris	1	1
	Ajmer-Merwara	9	4
TOTAL		91	67
C.—MANGANESE.			
CENTRAL PROVINCES	Nagpur	1	...
	Balaghat	3	...
	Vizagapatam	...	2
TOTAL		4	2
D.—LIMESTONE.			
CENTRAL PROVINCES	Jabalpur	3	1
E.—SALT.			
PUNJAB	Mianwali	6 Quarries.	9 Quarries.
F.—GOLD.			
MADRAS	Nilgris	1	...
BURMA	Katha	...	1
TOTAL		1	1
G.—GEMS.			
BURMA (RUBIES, ETC.)	Mogok	1	...
H.—TIN ORE.			
BURMA	...	...	...
I.—ASBESTOS.			
RAJPUTANA	Ajmer-Merwara	1	...

* At Maolong by the Maolong Lime and Stone Co.

STATEMENT III.

STATEMENT OF PROSECUTIONS INSTITUTED UNDER THE INDIAN MINES ACT (VIII OF 1901), DURING THE YEAR ENDING 31ST DECEMBER 1903.

PROVINCE.	District.	Number of prosecutions.	Number of persons prosecuted.	Number convicted.	REMARKS.
		Nil.	Nil.	Nil.	

STATEMENT IV.

CLASSIFIED STATEMENT OF FATAL AND SERIOUS ACCIDENTS IN AND AT MINES DURING THE YEAR.

PROVINCE.	District and Coal-field.	Total average number of persons employed (column 15 of Statement I).	Total output.	FATAL ACCIDENTS.						SERIOUS ACCIDENTS.					
				Number of separate accidents.	NUMBER OF PERSONS KILLED.				Total.	Number of separate accidents.	NUMBER OF PERSONS SERIOUSLY INJURED.				Total.
					By falls in mine.	By accidents in shafts.	By miscellaneous accidents below ground.	By surface accidents.			By falls in mine.	By accidents in shafts.	By miscellaneous accidents below ground.	By surface accidents.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
A.—COAL.															
Bengal	Hazaribagh—Giridih	10,691	Tons. 766,871	5	7	...	3	...	10	35	7	...	21	8	36
"	Manbhum—Jherria	26,114	2,745,729	24	7	6	8	6	27	10	6	1	2	1	10
"	Do. Raniganj	3,013	245,927	4	3	...	...	1	4	1	...	...	...	1	1
"	Bankura Do.	193	10,634	...	...	...	...	...	...	...	...	...	...	...	...
"	Birbhum Do.	37	2,112	...	...	...	...	...	...	...	...	...	...	...	...
"	Burdwan Do.	30,566	2,759,033	20	4	6	10	2	22	12	5	1	5	2	13
"	Santhal Parganas—Raniganj.	45	2,026	...	...	...	...	...	...	...	...	...	...	...	...
"	Santhal Parganas—Rajmahal.	34	335	...	...	...	...	...	...	...	...	...	...	...	...
"	Palamau—Daltonganj	1,235	33,557	...	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	73,928	6,566,224	53	21	12	21	9	63	58	18	2	28	12	60
Central Provinces.	Chindwara—Pench River.	27	88	...	...	...	...	...	...	...	...	...	...	...	...
	Narsinghpur—Mohpani	809	31,443	...	...	...	...	...	...	1	...	...	1	...	1
	Chanda—Warora	1,235	127,623	1	1	...	...	...	1	1	...	...	1	...	1
	TOTAL	2,071	159,154	1	1	...	...	...	1	2	...	...	2	...	2
Punjab	Jhelum—Dandot	1,403	43,704	1	1	...	...	...	1	10	3	...	4	3	10
Assam	Lakhimpur—Makum	1,238	239,278	1	1	...	...	...	1	...	...	...	...	...	...
	Khasi and Jaintia Hills	17	50	...	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	1,255	239,328	1	1	...	...	...	1	...	...	...	...	...	...
Baluchistan.	Sibi—Khost	643	36,444	1	1	...	...	...	1	1	1	...	...	...	1
	Thal Chotiali—Mud Gorge.	6	58	...	...	...	...	...	...	...	...	...	...	...	...
	Quetta—Sor range	70	5,648	...	...	...	...	...	...	...	...	...	...	...	...
	Bolan—Mach, and Degari	100	4,759	...	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	824	46,909	1	1	...	...	...	1	1	1	...	...	...	1
Burma	Shwebo	80	9,306	...	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (COAL)	79,561	7,064,625	57	25	12	21	9	67	71	22	2	34	15	73
B.—MICA.															
Bengal	Monghyr	122	17	...	...	...	...	...	...	...	...	...	...	...	...
	Hazaribagh—Kodarma	5,878	553	6	2	1	4	2	9	1	...	...	2	...	2
	Gaya	464	122	...	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	6,464	692	6	2	1	4	2	9	1	...	...	2	...	2
Rajputana	Ajmer—Merwara	323	132	...	...	...	...	...	...	...	...	...	...	...	...
Madras	Nellore	2,262	168	...	...	...	...	...	...	1	...	...	1	...	1
	Nilgiris	50	13	...	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	2,312	181	...	...	...	...	...	...	1	...	...	1	...	1
	GRAND TOTAL	9,099	1,005	6	2	1	4	2	9	2	...	...	3	...	3
C.—MANGANESE ORE.															
Central Provinces.	Nagpur	3,543	94,652	...	...	...	...	...	...	1	...	...	...	1	1
	Bhandara	75	5,048	...	...	...	...	...	...	...	...	...	...	...	...
	Balaghat	385	7,898	...	...	...	...	...	...	...	...	...	...	...	...
Madras	Vizagapatam	2,939	63,625	1	...	...	...	1	1	1	...	...	...	1	1
	TOTAL	6,942	171,223	1	...	...	...	1	1	2	...	...	...	2	2
D.—LIMESTONE.															
Central Provinces.	Jabalpur—Katni	1,884	35,238	1	1	...	...	...	1	...	...	...	...	...	...

APPENDIX.

DETAILS OF FATAL ACCIDENTS WHICH OCCURRED IN AND AT MINES UNDER THE
INDIAN MINES ACT, 1901, DURING THE YEAR ENDING 31ST DECEMBER 1903.

Number.	Date and hour of Accident.	Name of mine, mineral wrought, and situation (village, district, and province).	Name of Owner or Company.	Name, age, sex, and occupation of person killed.	Cause of accident and remarks.
BELOW GROUND.					
I.—FALLS IN MINE.					
<i>1. Falls of roof, stone or coal.</i>					
1	1903. 8th May, 8 A.M.	Ledo Valley (West) Coal Mine, Lakhimpur, Assam.	Assam Railways and Trading Co., Ld.	Dhaniram Teli, 25, (m.), Filler.	When he was filling a basket at an "opening," 20 tons of coal fell from a face slip, broke down the timber-frame, and buried him. He was quite dead when recovered. The question of the usefulness of the timber frames, as safeguards against accidents from falls, was thoroughly considered. Inspection and inquiry made.
2	1st January, 5-30 P.M.	Kendwadeeh Coal Mine, Kendwadeeh, Jherria, Manbhum, Bengal.	East Indian Coal Co., Ld.	Phoolmani Majhain, 25, (f.), Dust-woman.	She entered into a fenced-off gallery. Roof-coal, weighing about half a ton fell on her. Killed instantly. Inspection and inquiry made.
3	20th February, 12-30 P.M.	Kusunda Coal Mine, Kusunda, Jherria, Manbhum, Bengal.	J. K. Roy	Rahim Kora, 46, (m.), Coal-cutter.	While he was robbing a pillar, top coal, weighing about a ton, fell on him. Killed instantly. Inspection and inquiry made.
4	5th May, 9-A.M.	Gopalichuck Coal Mine, Gopalichuck, Jherria, Manbhum, Bengal.	Gopalichuck Coal Co., Ld.	Balu Singh, 30, (m.), Miner.	When he was filling a basket at the working face with coal, about a ton of roof-shale fell on him. Died 12 hours later. The working of the coal had freed a slip from which the roof fell. Suitable precautions were recommended. Inspection and inquiry made.
5	30th April, 5-30 P.M.	No. 3 Pit, Sodepur Coal Mine, Sodepur, Burdwan, Bengal.	Bengal Coal Co., Ld.	Suki Meghan, 20, (f.), Coal-carrier.	While she was carrying coal, about half a ton of coal fell from the roof and struck her. Died from blood poisoning a month later. Her relatives refused to allow the Colliery Doctor to treat her. I (J. G.) saw her twice at her home, and believe she would have recovered under proper treatment. Improved inspections of the mine are to be made daily. Inspection and inquiry made.
6	2nd September, 3-A.M.	No. 6 Incline, Chaurassi Coal Mine, Chaurassi, Manbhum, Bengal.	Equitable Coal Co., Ld.	Somi Kora, 15, (f.), Coal-carrier.	She went with her husband to work in a fenced-off gallery, and a piece of stone (6'x5'x4") fell on her. Killed instantly. The husband escaped unhurt. The place was properly fenced off, because it was known to be dangerous. Inspection and inquiry made.
7	18th December, 7-P.M.	No. 18 Incline, Shampur Coal Mine, Shampur, Manbhum, Bengal.	Shampur Coal Co., Ld.	Khiri Bhea, 16, (f.), Coal-carrier.	While she was eating her food in a gallery where miners had been taking down top-coal an hour earlier, roof-stone (7'6"x5'x1') fell on her. Killed instantly. The miners had left the place in a dangerous condition, and the deceased and two other women went to eat their food at the place. Inspection and inquiry made.
8	11th April, 2-P.M.	Choukpazat Mine (Gold), Choukpazat, Katha, Upper Burma.	Choukpazat Gold Mining Co., Ld.	Chundra Money, 35, (m.), Miner.	When he was pushing a ruck, in the main adit, roof-stone fell on him. Died 4 days later. Rock had just been blasted near the place, and it was thought that this had loosened the part that fell.

DETAILS OF FATAL ACCIDENTS, ETC.,—*continued.*

Number.	Date and hour of Accident.	Name of mine, mineral wrought, and situation (village, district, and province).	Name of Owner or Company.	Name, age, sex, and occupation of person killed.	Cause of accident and remarks.
9	1903. 19th July, 1 P.M.	Jatah Mine (Mica), Koderma, Hazaribagh, Bengal.	Rajkrishna Sahana	Tekoa Gope, 27, (m.), Diloa Gope, 24, (m.), Coolies.	Roof-stone weighing about 3 maunds fell on them. One man died the same day, and the other 3 months later. It was evident that the place had not been properly examined. The manager reprimanded and fined the examining munshi. Inspection and inquiry made.

2. Falls of side.

10	22nd September, 3 P.M.	Dandot Coal Mine, Dandot, Jhelum, Punjab.	North-Western Railway.	Bahadur, 45, (m.), Miner.	While shovelling rubbish at the working face, a stone (4' × 2½' × 2') fell on him from the upper part of the seam. Killed instantly. The deceased had just begun work, but he had gone to the place before the mate in charge of the shift had examined it. Inspection and inquiry made.
11	15th October, 9 A.M.	Katni Quarry, (Lime), Katni, Jabalpur, Central Provinces.	Chattarey . .	Kalu, 35, (m.), Coolie.	While he was undermining a bank of earth 7 feet high, about 4 maunds of gravel and sandy clay fell on him. Died 2 hours later.
12	13th August, 11 A.M.	Sariabad Mine, Karharbari Colliery, Giridih, Hazaribagh, Bengal.	East Indian Railway Co.	Karmon Meah, 18, (m.), Coal-cutter; Suphia Jolhin, 13, (f.), Coal-carrier.	When loading coal, a piece of stone (6' × 4' × 6") fell on them from the face of a fault. Died 8 and 2 days later, respectively. The place had been examined by the overman in charge about 3 hours before the accident. As a proper examination should have detected the dangerous stone, and steps should have been taken to avoid an accident, the overman was severely punished for not doing so. Inspection and inquiry made.
13	7th October, 12-30 P.M.	No. 4 Incline, Kankanee Coal Mine, Kankanee, Jherria, Manbhum, Bengal.	Eastern Coal Co., Ld.	Dular Shaw, 30, (m.), Coal-cutter.	While robbing a pillar in a fenced-off portion of the mine, a mass of coal fell on him. Died an hour later. Inspection and inquiry made.
14	30th April, 1 P.M.	No. 4 Pit, A Seam, Salanpur Coal Mine, Salanpur, Burdwan, Bengal.	Borrea Coal Co., Ld.	Gopal Majhi, 45, (m.), Coal-cutter.	While robbing a pillar about a ton of side coal fell on him. Died an hour later. Inspection and inquiry made.
15	9th October, 7-30 A.M.	No. 1 Incline A Seam, Salanpur Coal Mine, Salanpur, Burdwan, Bengal.	Borrea Coal Co., Ld.	Kadi Bauri, 23, (f.), Coal-carrier.	Whilst sitting near the corner of a gallery about 15 tons of coal came off from a slip and fell on her. Killed instantly. The daily examinations, by officials, are to be more thoroughly made. Inspection and inquiry made.
16	20th June, 2 A.M.	No. 1 Pit Section, Kantapahari Coal Mine, Kantapahari, Burdwan, Bengal.	Barakar Coal Co., Ld.	Babulal Kora, 33, (m.), Coal-cutter.	While he was robbing a pillar a piece of side coal (about 6 cwt.) fell on him. Died some hours later. Inspection and inquiry made.
17	30th March, 9 A.M.	La-da-Taung Mine, Ludwin (Ruby), Mogok, Upper Burma.	Ma Sib . .	Aik E., 30, (m.), Coolie.	He was working in an excavation when a mass of earth fell and smothered him.

3.—Falls of coal in working places.

18	26th June, 4-15 P.M.	Warora Coal Mine, Chanda, Central Provinces.	Government of India.	Dawia Suronia, 30, (m.), Coal-cutter.	Roof-coal (about 10' × 3½' × 2½') fell on him in his working place. Died about 2 hours later. The coal fell from a slip near where a shot had been fired. Inspection and inquiry made.
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DETAILS OF FATAL ACCIDENTS, ETC.,—*continued.*

Num-ber.	Date and hour of Accident.	Name of mine, mineral wrought, and situation (village, district, and province).	Name of Owner or Company.	Name, age, sex, and occupation of person killed.	Cause of accident and remarks.
19	1903. 20th October, 9-30 P.M.	No. 30 Pit, Khuldia Coal Mine, Giridih, Hazaribagh, Bengal.	Bengal Coal Co., Ld.	Mongar Musar, 40, (m.), Tejo Musar, 50, (m.), Lattoo Musar, 35, (m.), Sukar Musar, 25, (m.), <i>Coal-cutters.</i> Poonia Musarin, 22, (f.), <i>Coal-carrier.</i>	They had begun work to take out a large pillar, and had driven about 6 feet in the bottom coal along about 30 feet of the pillar face leaving stooks on the both sides. There was a slip on each side of the cutting, and though the top coal was propped it suddenly fell on these five coolies, and on three others who were injured. The investigation of this accident led to several changes and improvements being made. Inspection and inquiry made.
20	5th February, 1 P.M.	Ganhudih Coal Mine, Ganhudih, Jherria, Manbhum, Bengal.	Ganhudih Coal Concern and Do- bari Coal Co.	Khudiram Bauri, 30, (m.), <i>Coal-cutter.</i>	Top-coal weighing about 2½ tons fell on him whilst working at the place. The official in charge said that the deceased went to work at the place contrary to orders. Inspection and inquiry made.
21	21st May, 2 P.M.	Ekra Khas Coal Mine, Ekra, Jherria, Manbhum, Bengal.	Maharajah of Cos- simbazar.	Sanichar Malla, 25, (m.), Mongra Malla, 25, (m.), <i>Miners.</i>	While three men were at work under overhanging side coal with stone above it, one was killed instantly by a fall of the coal. The other two went to his rescue when two pieces of stone fell on them. One of the two men died several days later, but the other recovered. The official supervision and the examinations of the mine were unsatisfactory. Inspection and inquiry made.
22	15th May, 6 P.M.	East Incline Workings, Egarcoor Coal Mine, Egarcoor, Manbhum, Bengal.	Suitable Coal Co. .	Madhu Majhi, 36, (m.), <i>Coal-cutter.</i>	Side-coal (about 2 tons) fell, and a piece of the coal (about 2 cwt.) struck him. Died 6 hours later. The supervision and the examination of the mine were unsatisfactory. No medical treatment was got for the man. Inspection and inquiry made.

II. IN AND AT SHAFTS.

4.—Overwinding.

None.

5.—Ropes and Chains breaking.

23	5th November, 5-20 P.M.	No. 5 Pit, Jherria Khas Coal Mine, Jherria Khas, Jherria, Manbhum, Bengal.	Standard Coal Co., Ld.	Darbari Kooiri, 25, (m.), <i>Hook-man.</i>	When a commencement was made to wind up a loaded bucket, the empty bucket (attached to the other end of the steel wire rope) and 56 feet of the rope fell to the bottom of the pit and struck him. Died 12 hours later. The rope broke close to the drum. Questions connected with the condition of the rope, etc., were fully gone into. Inspection and inquiry made.
24	8th August, 8 A.M.	No. 5 Pit, Desherghur Coal Mine, Desherghur, Burdwan, Bengal.	Equitable Coal Co., Ld.	Balmakunda Singh, 19, (m.), <i>Coolie.</i>	While a train of six loaded tubs was being drawn up the incline, the steel wire hauling rope broke near a splicing, and he was crushed by the runaway tubs. Two other men were slightly injured. Inspection and inquiry made.

6. Whilst ascending or descending by machinery.

None.

7. Falling into shafts from the surface.

25	8th May, 5-45 P.M.	Madhuband Coal Mine, Seedpoki, Jherria, Manbhum, Bengal.	Barakar Coal Co., Ld.	Bhoiha, 25, (m.), <i>Rope-man.</i>	While standing on a ladder, and taking a pulley block off the cross-piece of a rough head-frame, he fell down the pit, 63 feet deep. Killed instantly. There was a want of proper precautions. Inspection and inquiry made.
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DETAILS OF FATAL ACCIDENTS, ETC.—*continued.*

Number.	Date and hour of Accident.	Name of mine, mineral wrought, and situation (village, district, and province).	Name of Owner or Company.	Name, age, sex, and occupation of person killed.	Cause of accident and remarks.
26	1903. 9th July, 10 A.M.	No. 6 Pit, Murulidi Coal Mine, Murulidi, Jherria, Manbhum, Bengal.	Finlay, Muir & Co.	Chatu Touri, 14, (m.), <i>Rope-coolie.</i>	He was leaning on a cross-bar that was insecurely tied to the pulley-frame by rope, it slipped and he fell down the pit, 16½ feet deep. Killed instantly. Inspection and inquiry made.
27	10th November, 11-20 P.M.	No. 3 Shaft, Benahir Coal Mine, Benahir, Jherria, Manbhum, Bengal.	Standard Coal Co., Ld.	Thakuri Gope, 50, (m.), <i>Trolly-man.</i>	He was supposed to be dozed from smoking "ganja," and fell from the surface into an empty descending bucket. Died an hour later. Inspection and inquiry made.
28	14th March, 7 P.M.	No. 6 Pit, Baraboni Coal Mine, Baraboni, Burdwan, Bengal.	New Beerbhum Coal Co., Ld.	Pokhon Koiri, 30, (m.), <i>Coal-cutter.</i>	When the deceased and another man were ascending in a cage, an empty tub fell out of the descending cage and struck him. He fell to the bottom of the shaft. Killed instantly. It was stated that the two men were riding in the cage contrary to orders and, consequently, the necessary care and conditions for men riding were not being carried out. Inspection and inquiry made.
29	10th May, 8 A.M.	No. 5 Pit, Chhota Dhemu Coal Mine, Chhota Dhemu, Burdwan, Bengal.	Bamandas Mukerji	Suda Singh Ghatwal, 50, (m.), <i>Sinker.</i>	He tried to jump from a brick-pillar of the head gear to the ground, and fell into and to the bottom of the sinking pit, 73 feet deep. Killed instantly. Inspection and inquiry made.
30	5th December, 5 P.M.	No. 5 Pit, Haripur Coal Mine, Haripur, Burdwan, Bengal.	Tarini Coal Co.	Madhab Gope, 35, (m.), <i>Bucket-man.</i>	While standing at the edge of the pit, and between a trolly and the pit, he pulled the trolly towards him and fell into the pit, 80 feet deep. Killed instantly. This accident led to considerable correspondence as to fencing. The reason for the deceased bringing about the accident in the way he did is inexplicable. Inspection and inquiry made.
31	20th June, 6 A.M.	Lalkee Mine, (Mica), Bendee, Hazaribagh, Bengal.	Indian Mica Co., Ld.	Goolia Bhuiya, 20, (m.), <i>Driller.</i>	Slipped and fell into the winding compartment whilst dancing on a plank platform over the mouth of the shaft, 90 feet deep. Inspection and inquiry made.

8. *Falling from a part of the way down.*

None.

9. *Things falling from surface.*

32	26th October, 12 noon.	Sinking Pit, Bankola Coal Mine, Ukhara, Burdwan, Bengal.	Eastern Coal Co., Ld.	Nanku Hazra, 30, (m.), <i>Sinker.</i>	While he and thirteen others were in a sinking pit (260 feet deep), a spike was being driven into a plank at the top of the shaft; the hammer handle broke, and the hammer head fell on him. Killed instantly. It is believed that the action taken will prevent any work being done in future at the pit top whilst persons are below in the pit. Inspection and inquiry made.
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10. *Things falling from part of the way down.*

33	1st May, 10 A.M.	Kankanee Coal Mine, Kankanee, Jherria, Manbhum, Bengal.	Eastern Coal Co., Ld.	Aklu Bauri, 16, (m.), <i>Sinker.</i>	While he was at the bottom of a sinking pit (120 feet deep), a piece of stone (4" cube) fell on him from the ascending basket. Died 14 days later. Steps were at once taken to have the primitive appliances, to which the accident was apparently due, changed for better. Inspection and inquiry made.
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DETAILS OF FATAL ACCIDENTS, ETC.—*continued.*

Num-ber.	Date and hour of Accident.	Name of mine, mineral wrought, and situation (village, district, and province).	Name of Owner or Company.	Name, age, sex, and occupation of person killed.	Cause of accident and remarks.
<i>11. Miscellaneous.</i>					
34	1903. 28th December, 3-30 A.M.	Bhaga Coal Mine, Bhaga, Jherria, Manbhum, Bengal.	Jherria Colliery Co., Ld.	Bacha Kooiri, 35, (m.), <i>Sinker.</i>	While he and two others were working in the pit bottom their lights went out, and in avoiding the descending bucket he fell on a jumper and injured his brain. Died five hours later. Inspection and inquiry made.
35	18th April, 9-30 P.M.	No. 6 Pit (Pumping), Dhadka Coal Mine, Dhadka, Burdwan, Bengal.	New Beerbhum Coal Co., Ld.	Babulal Bauri, 30, (m.), <i>Pump-khalási.</i>	When he had oiled the pump he shouted to the engine-driver to wind him up the pit (100 feet deep), the bucket was raised a few feet and the beam-engine stopped on its dead-centre. The bucket was empty on arrival at the surface half an hour later. He was found on the pump platform insensible, and with two broken ribs. Died two hours later. Steps were forthwith taken to make it much less likely for the engine to stop on the centre. The engine is an old single acting beam-engine. The cause of the man's death was difficult to ascertain, especially as the Colliery Doctor did not try to fully ascertain the injuries. Inspection and inquiry made.

III.—MISCELLANEOUS BELOW GROUND.

12. Explosions of fire-damp.

36	17th May, 5 P.M.	No. 35 Pit, Dhadka Coal Mine, Dhadka, Burdwan, Bengal.	New Beerbhum Coal Co., Ld.	Keshub Bauri, 45, (m.), <i>Pump-khalási.</i>	He and two friends went down the pit to the pump, and into the workings with a naked light; a small quantity of gas exploded and they were all burnt. He died fifteen hours later. It did not appear to be known that there was any fire-damp at the place, which was at a small fault where the roof was a little higher than other parts. Inspection and inquiry made.
37	1st August, 11 A.M.	No. 3 Pit, Ghusik Coal Mine Ghusik, Burdwan, Bengal.	S. T. Creet and Co.	Koka Maghi, 40, (m.), <i>Sirdar</i> ; Ramani Bauri, 20, (m.), <i>Miner.</i>	The part had been stopped for two months, and when three men entered the gallery, with open lights, fire-damp exploded. They were all burnt, and one man died three days, and another eleven days, later. There was a small accumulation of highly inflammable fire-damp in a high part of the roof, and this exploded, when the Sirdar raised his light into it. Inspection and inquiry made.

13. Suffocation by gases.

None.

14. By explosives.

38	3rd December, 11-30 A.M.	No. 2 Sinking Pit, Aldih Coal Mine, Aldih, Burdwan, Bengal.	Aldih Coal Co., Ld.	Bisson Gope, 32, (m.), <i>Sinker.</i>	While he was filling out loose stone at the bottom of the sinking pit, a dynamite cartridge from the previous day's charge, which had been electrically fired, exploded. He was knocked down and died two days later. Four other men were injured. Inspection and inquiry made.
39	13th May, 12 noon.	Tilkutia Mine, (Mica), Sankh, Hazariabagh, Bengal.	Manaranjan Guha.	Mahadeo Singh, 25, (m.), <i>Sirdar</i> ; Bhatna Gope, 15, (m.), <i>Coolie.</i>	Whilst a shot-hole was being stemmed with a bamboo stick the gun-powder exploded, killing two men instantly, and injuring a third man. The injured man was not getting proper medical treatment until I pressed the matter. Inspection and inquiry made.

DETAILS OF FATAL ACCIDENTS, ETC.—*continued.*

Num-ber.	Date and hour of Accident.	Name of mine, mineral wrought, and situation (village, district, and province).	Name of Owner or Company.	Name, age, sex, and occupation of person killed.	Cause of accident and remarks.
<i>15. Irruptions of water and falling into water.</i>					
40	1903. 6th April, 3 P.M.	Bamondia Coal Mine, Bamondia, Burdwan, Bengal.	C. C. Sarkar	Ratu Bauri, 35, (m.), <i>Coal-cutter</i> ; Buji Baurin, 18, (f.), <i>Coal-carrier.</i>	Drowned by water breaking into the mine, probably from old workings. The bodies have not yet been recovered owing to the colliery owner failing to pump out the water. I still hope to recover the bodies, and to ascertain the cause of the inundation. Inspection and inquiry made.
41	27th January, 9 A.M.	Bishodhar Mine, (Mica), Koderma, Hazaribagh, Bengal.	Jotindra Nath Bose.	Kosholi Jolahin, 20, (f.); Panoa Ghatwarni, 12, (f.), <i>Coolies.</i>	While they were drinking water at an old excavation one of them slipped and caught hold of the other woman, they fell into the water (100 feet deep), and were drowned. The body of Panoa had not risen to the surface, but was recovered by me twenty-eight days after the accident. Inspection and inquiry made.
<i>16. On inclined and engine planes.</i>					
42	23rd April, 1 P.M.	No. 15 Pit, Khuldia Coal Mine, Giridih, Hazaribagh, Bengal.	Bengal Coal Co., Ld.	Teko Gope, 20, (m.), <i>Rail-khalási.</i>	He had been repairing the tram lines and was, apparently, crossing the jig when the descending full set struck him. Instantly killed. No one saw the accident happen. Inspection and inquiry made.
43	7th January, 8 P.M.	No. 2 Incline, Alkusa Coal Mine, Alkusa, Jherria, Manbhum, Bengal.	Raniganj Coal Association, Ld.	Ramjew Koiri, 35, (m.), <i>Slack-loader</i> ; Jebeah Torin, 22, (f.), <i>Coal-carrier.</i>	While they were trying to avoid being injured by three runaway tubs, the oil from their lamps ran over their clothes and took fire. They were severely burnt, and died thirteen and eleven days later, respectively. They were travelling in the incline contrary to orders. Sufficient stop-blocks, to avoid such an accident, have now been fixed, and the proper way to use them fully explained. Inspection and inquiry made.
44	2nd April, 3-30 A.M.	No. 1 Haulage Incline, Bagdiggi Coal Mine, Bagdiggi, Jherria, Manbhum, Bengal.	C. J. Smith, Esq.	Madho Napit, 25, (m.), <i>Hook-man and Signal-man.</i>	While at his signal station, he was struck by a train of eight runaway empty tubs, which were started from the surface in the absence of the Engine-khalási. Killed instantly. The manager promised to have the signal stations in safer places, also to fix such additional stop-blocks as will prevent such an accident recurring. Inspection and inquiry made.
45	8th September, 3-45 P.M.	No. 3 Incline, Bagdiggi Coal Mine, Bagdiggi, Jherria, Manbhum, Bengal.	Ditto	Somer Shaw, 35, (m.), <i>Hook-man</i> ; Somi Megain, 40, (f.), <i>Coal-carrier.</i>	The gate-man started the train from the surface, but had neglected to couple seven empty tubs to the eighth. They continued to descend and struck the hook-man and a woman. He was instantly killed, and she died seven hours later. This accident was also due, principally, to insufficient stop-blocks. Sufficient stop-blocks have since been fixed. Inspection and inquiry made.
46	29th May, 6-30 A.M.	Kaukanee Coal Mine, Kaukanee, Jherria, Manbhum, Bengal.	Eastern Coal Co., Ld.	Mandhara Malla, 25, (m.), <i>Coolie.</i>	A drawbar broke and seven empty tubs, which rushed down the incline, struck him. Died eleven hours later. The man was working on the bottom end of the incline extending it. The drawbar was that of an empty tub just starting down the incline from the top. The Agents state that when the tubs were ordered the following stipulation was made:—"Drawbar with hook and link of toughest iron procurable." Inspection and inquiry made.

DETAILS OF FATAL ACCIDENTS, ETC.—*continued.*

Number.	Date and hour of Accident.	Name of mine, mineral wrought, and situation (village, district, and province).	Name of Owner or Company.	Name, age, sex, and occupation of person killed.	Cause of accident and remarks.
47	1903. 12th October, 8 A.M.	No. 1 Incline, Jamadoba Coal Mine, Jorapukur, Jherria, Manbhumi, Bengal.	Indian Collieries Syndicate, Ltd.	Churki Mijhan, 18, (f.), Coal-carrier.	While travelling up the incline, a runaway tub struck her. Killed instantly. This is a new endless rope haulage system. The manager at once started to fix self-acting stop-blocks in the incline to almost instantly stop runaway full tubs. Inspection and inquiry made.
48	23rd January, 5-30 P.M.	No. 6 Feet, Desherghur Coal Mine, Desherghur, Burdwan, Bengal.	Equitable Coal Co., Ltd.	Paramananda Wissir, 26, (m.), Coolie.	While he was near the coal-face of the main haulage dip, five loaded tubs ran down to the face from opposite a gallery 15 feet higher up the incline, he rushed across the incline and was struck. The fear and excitement led him going from a safe position into the danger. The method of securing the tubs at such places has been improved. Inspection and inquiry made.
49	25th August, 2 P.M.	No. 3 Incline, Nuni Coal Mine, Nuni, Burdwan, Bengal.	R. P. Mukerji & Co.	Jugal Barri, 21, (m.), Hook-man.	While at his post, about 30 feet inside the incline, he was struck by a train of three runaway tubs which became unhooked at the surface. Died two hours later. To prevent the recurrence of such an accident the manager promised to fix (1) a second stop-block at a short distance down the incline, and (2) a runaway point near the mouth of the mine. Inspection and inquiry made.

17. *By trams and tubs.*

50	26th March, 8 P.M.	Sariabad Mine, Karharbari Coal Mine, Giridih, Hazribagh, Bengal.	East Indian Rail- way Co.	Jharia Kolin, 35, (f.), Coal-carrier.	While she was taking an empty tub on the up-line, it struck a full tub on the down-line near the crossing, and in trying to get out of the way she stepped in front of the loaded tub and was knocked down by it. Died seventeen days later. Inspection and inquiry made.
51	12th November, 5-30 P.M.	No. 1 Pit, Paharidih Coal Mine, Paharidih, Giridih, Hazribagh, Bengal.	Bengal Coal Co., Ltd.	Nanku Turi, 32, (m.), Sirdar.	A loaded tub upset and fell on his left leg. Died seven days later.
52	29th July, 1 P.M.	No. 6 Pit, Bamandiah Coal Mine, Bamandiah, Burdwan, Bengal.	Shampore Coal Co., Ltd.	Bipin Bauri, 45, (m.), Coal-cutter.	An empty tub, which he was pulling out of the cage, while the latter was 2 feet above the bottom of the pit, fell on him. Died four hours later. Inspection and inquiry made.

18. *By machinery.*

None.

19. *By other causes.*

53	20th October, 7-30 P.M.	Burraghur Coal Mine, Burraghur, Jherria, Manbhumi, Bengal.	Hurridih Coal Co., Ltd.	Jogjiban Das, 21, (m.), Munshi and under- ground inspector.	While superintending the withdrawal of timbers in broken workings, he was struck on the forehead by the end of a falling prop. Died whilst being conveyed to the surface. Inspection and inquiry made.
54	8th June, 8-30 P.M.	No. 3 Pit, Desherghur Coal Mine, Desherghur, Burdwan, Bengal.	Equitable Coal Co., Ltd.	Nani Majee, 22, (m.), Coal-cutter.	Struck his torch-lamp with a pick and was burnt by the kerosine oil which took fire. He went home, many miles away, without the mine officials knowing of the accident. Died several days later. Inspection and inquiry made.

DETAILS OF FATAL ACCIDENTS, ETC.—*continued.*

Number.	Date and hour of Accident.	Name of mine, mineral wrought, and situation (village, district and province).	Name of Owner or Company.	Name, age, sex, and occupation of person killed.	Cause of accident and remarks.
IV. ON SURFACE.					
<i>20. By Machinery.</i>					
55	1903. 28th April, 3 P.M.	No. 1 Incline, Benahir Coal Mine, Benahir, Jherria, Manbhum, Bengal.	Standard Coal Co., Ld.	Surmali Kalal, 24, (m.), Coolie.	He climbed on top of a brick pillar supporting the turn sheave of the incline hauling rope, and fell into the sheave when the engine started to wind up the rope. Killed instantly. The man was new to the mining district, and quite ignorant as to machinery. Inspection and inquiry made.
<i>21. Boilers or steam pipes bursting.</i>					
None.					
<i>22. On Railways and Tramways belonging to mine.</i>					
56	28th August, 7-30 A.M.	Choitodeeh Siding, Choitodeeh Coal Mine, Choitodeeh, Jherria, Manbhum, Bengal.	Lutchipore Coal Co., Ld.	Mohan Bhuiya, 48, (m.), Coolie.	Whilst hand-shunting by pushing at the axle under a railway wagon, he slipped near an open culvert, and his left arm was badly injured. Died the same day. The railway company have promised to cover the culverts, where wagons have to be hand-shunted. Inspection and inquiry made.
57	6th April, 4 P.M.	No. 6 Pit Siding, Salampur Coal Mine, Bonbiddi, Burdwan, Bengal.	Borrea Coal Co., Ld.	Mohini Baurin, 25, (f.), Coolie.	While she was pushing an empty railway wagon down an easy grade, a second wagon followed and crushed her between the buffers. Died instantly. It was not the duty of the deceased to push the wagon. The two wagon sirdars were fined, by the manager, Rs. 5 each for not superintending the shunting. And an order was given that no female is to move the wagons except under the guidance and control of the wagon sirdars, also that special attention is to be given to fastening down the brakes of standing wagons. Inspection and inquiry made.
58	14th February, 1-30 P.M.	Parapi Mine, (Manganese), Parapi, Vizagapatam, Madrass.	Vizianagram Mining Coal Co., Ld.	Ponada Budagadu, 40, (m.), Coolie.	While standing with a foot on each of two uncoupled empty trucks in motion, he fell between them and was run over. Died three days later.
59	9th March, 4-45 P.M.	Shwebontha Mine (Ruby), Mogok, Upper Burma.	Burma Ruby Mines Co., Ld.	Mg-Soo, 25, (m.), Coolie.	Whilst standing in front of a truck that he and others had been shunting, it suddenly started and knocked him against a beam. Killed instantly.
<i>23. Miscellaneous.</i>					
60	29th July, 12 noon.	No. 2 Incline, Kendwadih Coal Mine, Kendwadih, Jherria, Manbhum, Bengal.	East Indian Coal Co., Ld.	Bandi Kumari, 30, (m.), Coolie.	Whilst bathing in a feed water tank, 5 feet deep, she was drowned. Inspection and inquiry made.
61	5th September, 7-30 A.M.	No. 1 Pit, Brahmanbarari Coal Mine, Brahmanbarari, Jherria, Manbhum, Bengal.	East Indian Coal Co., Ld.	Behari Singh, 35, (m.), Miner.	He tried to enter a cage which had just begun to descend, and was struck by the top rim. Died seven days later. Inspection and inquiry made.
62	5th November, 4 P.M.	Katras Coal Mine, Katras, Jherria, Manbhum, Bengal.	Nowaghur Coal Co., Ld.	Gurudayal Bhuiya, 25, (m.), Coolie.	While a boiler was being placed in position, the shear legs supporting it collapsed and struck him. Died instantly. The shear legs consisted of lengths of wrought iron pipe with screw joints, and the collapse was caused by a joint giving way. The use of such pipes for shear legs is to be discontinued. Inspection and inquiry made.

DETAILS OF FATAL ACCIDENTS, ETC.—concluded.

Number.	Date and hour of Accident.	Name of mine, mineral wrought, and situation (village, district, and province).	Name of Owner or Company.	Name, age, sex, and occupation of person killed.	Cause of accident and remarks.
63	1903. 18th November 6-30 P.M.	No. 1 Pit, Hurriladih Coal Mine, Hurriladih, Jherria, Manbhum, Bengal.	Hurriladih Coal Co., Ld.	Imamali, 20 (m.), Trolly Coolie.	A lamp attached to the iron head-frame of the sinking pit by a piece of rope, burnt through the rope and fell on the pit top planking. The assistant manager, who was there at the time, kicked the lamp away to prevent the burning oil falling down the pit on to the sinkers below. He inadvertently kicked it against deceased, who received the burning oil all over him, from the effects of which he died in three weeks' time. The assistant manager, before kicking the lamp, called to every one to stand aside and, presumably, deceased did not get out of the way quick enough. The circumstances of this case were fully inquired into by the police authorities. Inspection and inquiry made.
64	3rd May, 7 A.M.	No. 6 Old Incline, Egarcoor Coal Mine, Egarcoor, Manbhum, Bengal	Ahmad Yoosaf	Punit, 28, (m.), Coolie.	He was found drowned in the open portion of an old incline nearly full of water. A part of the wire fencing was broken down and the deceased had, apparently, fallen over that part of the fencing whilst walking there in the dark. Inspection and inquiry made.
65	3rd June, 4-30 P.M.	A Pit, Pretoria, Seebpore Coal Mine, Kaitha, Burdwan, Bengal.	Seebpore Coal Co., Ld.	Mangal Majhi, 32, (m.), Coal-cutter.	He jumped out of the cage when the latter commenced to descend, and fell on the pit-bank. Died twelve hours later. But it is doubtful whether he died from injuries received. Inspection and inquiry made.
66	22nd May, 3-30 P.M.	Charkapathal Mine, (Mica), Kireadee, Koderma, Hazariabagh, Bengal.	C. R. Hills, Esq.	Rewa Babhan, 30, (m.), Sirdar.	Whilst he was picking out mica from underneath a rubbish heap, the loose covering earth (about 30 square feet and 2 feet deep) fell and smothered him. The deceased was assisting his brother to do this dangerous work. Inspection and inquiry made.
67	14th December, 10-30 A.M.	Lakamandua Mine. (Mica), Lakamandua, Koderma, Hazariabagh, Bengal.	Chota Nagpur Mica Syndicate, Ld.	Mohona Dosad, 18, (m.), Driller.	While a miner was filling a lighted lamp from a bottle, the kerosine oil caught fire, and the bottle, also 1 seer of gunpowder, 6 cartridges of dynamite, and 12 detonators exploded. Five men sitting nearby were injured, the deceased died the same day. The accident happened near the entrance to the mine and the sirdar had placed the quantity of explosives for the days blasting on the slope of the hill only a few feet from the entrance. Inspection and inquiry made.

Department of Mines, India.

REPORT
OF THE
CHIEF INSPECTOR OF MINES IN INDIA,
Under the Indian Mines Act (VIII of 1901),
FOR THE
YEAR ENDING 31ST DECEMBER
1904.

BY
W. H. PICKERING,
CHIEF INSPECTOR OF MINES IN INDIA.



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FROM

W. H. PICKERING,
Chief Inspector of Mines in India,

TO

THE SECRETARY TO THE GOVERNMENT OF INDIA,
DEPARTMENT OF COMMERCE AND INDUSTRY.

Dated Calcutta, 20th May 1905.

Sir,

I have the honour to submit the report upon the Inspection of Mines in British India for the year 1904.

INTRODUCTION.

The Indian Mines Act, 1901, extends to the whole of British India including Burma, British Baluchistan, the Santhal Parganas and the Pargana of Spiti. This report relates entirely to the mines regulated by that Act. In some other years a few statistical tables relating to mines in Native States and other workings not regulated by the Act have been included. It is not possible, at present, to give either approximately complete or accurate statistics of these workings and, as they do not fall within the legitimate scope of this report, they have been omitted.

My services having been lent to the Government of India by the Imperial Government, I took charge as Chief Inspector of Mines in India, on 19th December 1904. I am greatly indebted to Mr. Grundy, who acted as Chief Inspector from 8th April to 18th December 1904, and who is now the Inspector for No. 1 Circle, and to Mr. Adams, the Inspector for No. 2 Circle, for their very valuable assistance. They have ungrudgingly given me the benefit of their long experience of Indian Mining.

It is desirable that the statistics of the British Empire for an industry such as mining should be presented in as uniform a way as is possible. For the past few years the English model has been followed to a great extent in this report, but an explanation of the different conditions under which the mining statistics of England and India are collected and compiled must be given to prevent false conclusions from being drawn when the figures are compared.

The Indian and the English Mines Acts both impose upon mine-owners the obligation of furnishing, annually, the particulars of the persons employed and of the quantity of mineral raised, and of reporting all fatal and serious accidents as they occur. In England, the legislature has drawn distinct and definite lines between coal-mines, metalliferous mines and quarries, and the statistics relating to them are separately recorded. Under the English Acts, broadly speaking, a mine is an underground working where artificial light is used, and a quarry is an open excavation more than 20 feet deep. A "coal mine" is a mine of coal, fire-clay, stratified ironstone and of minerals worked in connection with them. A metalliferous mine is any other mine. The Indian Mines Act gives the widest possible interpretation to the word "mine." The definition given in Section 3 (d) of that Act is to the effect that the term "mine" embraces quarries or open excavations more than 20 feet deep or any part of which extends beneath the superjacent ground, as well as underground workings or true mines.

In both countries an undulation of the ground or a different method of working may bring an important mineral working within the operation of the Acts or leave it out as the case may be. Some other factors, which tend to make the figures misleading, are noted in the body of the report.

In the final report of the "Royal Commission on Coal Supplies" in England, published on the 7th January 1905, attention is drawn to the fact that English mining statistics are "inadequate and sometimes misleading," and a suggestion is made that this should be remedied by the provision of proper machinery and statutory powers. If effect is given to this recommendation in England, it would be well if an attempt were to be made to consider the subject from an Imperial point of view. The mineral statistics of India and the Colonies are, to say the least, no more satisfactory than those of England. The clearness, accuracy, and adequacy of these statistics are matters of Imperial concern. The commercial world feels the pulse of many important industries through the figures; they are constantly used for purposes of comparison, and legislation is often based upon the conclusions and morals drawn from them.

The late Sir Clement Le Neve Foster, who did so much good work in the cause of mining statistics, strongly advocated, at the International Mining Congress at Paris in 1889, an international agreement as to mining statistics. The proposal has since been supported by European technical papers, but has never progressed beyond academic discussion. It should not be so very difficult to give practical effect to the suggestion so far as the British Empire is concerned.

Some changes have been made in the form of this annual report, the principal ones being the revision of the statistical tables and the removal of all detailed statements to appendices. The tables included in the body of the report are condensed summaries.

The Report is divided into five sections, *viz.* :—

- Section I.—Persons employed ;
- „ II.—Output of mineral ;
- „ III.—Accidents ;
- „ IV.—Prosecutions, discipline, and additions to the Act ;
- „ V.—General remarks ;

followed by four appendices, *viz.*, Appendix 1, List of fatal accidents with particulars of each ; Appendix 2, Detailed statistical information relating to mines regulated by the Indian Mines Act ; Appendix 3, List of enquiries under the Land Acquisition Act ; and Appendix 4, Additions to the Act.

SECTION I.—Persons Employed.

During the year 1904 the average number of persons working daily in and about mines regulated by the Indian Mines Act was 107,382, of whom 71,510 worked underground and 35,872 on the surface. 70,320 of the persons working were adult males, 31,828 adult females and 5,234 children under 12 years of age. Compared with the preceding year an increase of over 4 per cent. or of 5,187 workers is shown. This perhaps may be partly due to more complete and accurate returns, for the regulation requiring mine owners to make such returns came into operation on 8th December 1904. Previous to that date the returns were voluntary. There is ample evidence, however, apart from definite figures that the demand for labour at coal, mica, and some other mines is increasing, and that Indians are becoming more willing to work underground.

The differences under the various headings are recorded in Table No. 1 given below. The only reduction shown is in the number of persons employed in the Manganese Mines. The explanations appear to be, that the industry was temporarily depressed, mechanical haulage had replaced manual labour in some cases, and the flourishing condition of the cotton trade, and the higher wages to be earned in the mills attracted workers from the mines.

Proper weight cannot be given to the fluctuations in the number of persons working until mining becomes recognised as the permanent occupation of a larger class of labour, and until more reliance can be placed upon the accuracy of the returns from which the figures are collated. At present, many of the Indians who work in the mines only do so casually when a slackness in agriculture or other caste occupation gives them some leisure. Others are nomadic by nature and drift from mine to mine, and are easily tempted by labour agents to leave one district for another. Others work fitfully and irregularly for opposite reasons. They are strongly attached to their birth places and rather than leave their native villages and live near the mines will walk long

distances to their work. An example may be given: Some of the persons employed at a Bengal Colliery live 30 miles from the pit. They walk the distance through a rough jungle, stay at the colliery for 6 or 7 days, and then return home for a week's rest. Others live from 10 to 15 miles away and come irregularly to the mine. They stay there for 24 hours, of which they will spend 18 underground, working a double shift.

The practice of daily payments, which is in vogue at most mines, also has a tendency to make labour restless and unstable. In such conditions, it is most difficult for an owner to furnish a correct return of the average number of persons working daily unless he keeps very careful accounts.

With a view to steadying the labour, weekly payments have been introduced at a few collieries with gratifying results. It would be in the true interests of both the miners and the owners if this practice were the rule instead of the exception.

The miners appear to have been satisfied with their wages and with the conditions under which they work, for there were no serious strikes or labour troubles during the year.

It must be kept in mind when comparing Indian figures relating to employment with those of the other countries, that the Indian official notification with reference to the returns (see Appendix IV) requires that the average number of persons working daily shall be given. This is very different from a census of persons employed as miners, for it discards those who are not at work, and few miners in any country work full time. If this method of calculating were the rule in England a reduction of perhaps 10 per cent. would be shown. It would not be easy to apply the English practice to India, nor would it be desirable to do so unless the figures obtained by both methods were given.

TABLE No. 1.

THE FOLLOWING TABLE IS A SUMMARY OF THE AVERAGE NUMBER OF PERSONS WORKING DAILY IN AND ABOUT MINES REGULATED BY THE INDIAN MINES ACT, DURING THE YEAR 1904.

PROVINCE.	AVERAGE NUMBER OF PERSONS WORKING DAILY IN AND ABOUT MINES GETTING						
	Coal.	Mica.	Manganese.	Limestone.	Salt.	Other minerals.	Total persons.
Bengal	75,749	6,927	...	...	...	620	83,296
Central Provinces	1,803	...	2,010	1,917	...	109	5,839
Madras	...	6,585	1,980	...	...	233	8,798
Assam	1,339	...	...	...	...	...	1,339
Baluchistan	1,072	...	...	...	...	...	1,072
Punjab	1,945	...	...	45	1,329	207	3,526
Burma	94	...	...	...	...	2,638	2,732
Bombay	...	...	125	...	...	655	780
TOTAL 1904	82,002	13,512	4,115	1,962	1,329	4,462	107,382
Total preceding year	79,561	9,099	6,942	1,884	1,311	3,398	102,195
Difference	+2,441	+4,413	-2,827	+78	+18	+1,064	+5,187

For full details reference should be made to table No. 1 in Appendix II.

SECTION II.—Output of Mineral.

A glance at the table given below and a study of the detailed tables 2 and 4 in Appendix II will show that, with the exception of Manganese ore, there has been a substantial increase in the output of every important mineral from mines regulated by the Indian Mines Act. It is evident from these figures that Indian mining is making very good progress:—

Coal.

Fluctuations in the output of coal have the greatest commercial significance, for it is by far the most important mineral raised, both relatively and poten-

tially. Compared with the preceding year the large increase of 748,613 tons raised is shown, or an expansion at the rate of over 9 per cent. The growth of the industry appears to be healthy and natural.

The coal is used principally for the railway locomotives, for bunker coal for steamers and for raising steam at mills. Very little is used for household purposes, except the allowance coal given to the coal-cutters at the collieries. A coal-cutter is usually allowed to take a basket of coal home with him for every shift he works. He seldom fails to take advantage of this though he has to cut the coal himself and he or his wife or other assistant carry it to the surface. The Manager of a colliery employing 1,000 persons, estimated that the consumption from this cause was 10,000 tons a year. These facts show that an Indian will quickly acquire a taste for coal and will prefer it to the sticks and charcoal which he has hitherto used.

Coke to the amount of 228,214 tons was carried by Indian Railways during the year under review, and the figure substantially represents the output. There are a few old fashioned "Welsh ovens" in the Giridih Coal-field, but the bulk of the coke is made in open ovens. The coke is surprisingly good, but the process is very wasteful, for though no very reliable figures are available, it may be safely said that only 40 tons of hard coke will on the average be produced from 100 tons of coal used in these open ovens. In addition, there will be perhaps 5 tons of "dressings" suitable for smithy use. The coal has been tried in modern ovens and laboratories and the yield of coke has been over 70 per cent.

Manganese Ore.

Compared with the preceding year a decrease of 32,490 tons in the output of this mineral is shown. In spite of this, the industry shows no serious signs of languishing. Manganese is quarried not mined and the output for quarries under 20 feet deep is not included, for the Act does not require the owners of such quarries to make returns. The Chief Secretary to the Chief Commissioner of the Central Provinces when forwarding the returns for that Province, remarks:—

"The figures do not represent the whole output of manganese ore in the Province, as shallow workings which are sometimes of considerable importance are excluded."

The export of manganese ore from India during the year 1904 was 154,829 tons.

Mica.

Mica mining continues to flourish and expand. There was an increase of 61 tons raised in 1904 as compared with the preceding year. Mica is so valuable a mineral that it would perhaps be more fitting to record the output in cwt. instead of in tons.

Limestone.

An increase of 15,609 tons of limestone raised is shown. Most of the limestone is obtained from quarries at Katni in the Central Provinces. Large quantities of lime are made in various parts of India from highly calcareous surface soil for which statistics are not available. This lime when mixed with proper proportions of sand makes most excellent mortar.

Salt.

Salt is an important mineral in India. During the year under review 107,413 tons were raised from mines and quarries or an increase of 16,746 tons compared with the preceding year. Over 88 per cent of the Indian salt, however, is obtained from sea water or from salt lakes by evaporation.

Other minerals.

Minerals other than the above raised from mines under the Act are named below table No. 2 and the output given in table No. 2, Appendix II. The fluctuations in the output do not require any special remark for the year under review.

It may be noted that fire-clay appears for the first time amongst the minerals raised in India. It is worked in connection with the coal at Warora Colliery in the Central Provinces. Excellent fire-bricks are made from it. Fire-clay is also obtained from shallow quarries in the Bengal Coal fields, but the Act does not apply to them.

TABLE No. 2.

Quantity of Mineral raised.

THE FOLLOWING SHORT SUMMARY SHOWS THE OUTPUT OF THE PRINCIPAL MINERALS FROM MINES REGULATED BY THE INDIAN MINES ACT FOR THE YEAR 1904.

Province.	Coal.	Manganese Ore.	Mica.	Limestone.	Salt.
	Statute tons.	Statute tons.	Statute tons.	Statute tons.	Statute tons.
Bengal	7,058,980	...	826	...	...
Central Provinces	139,027	85,034	...	49,847	...
Madras	...	53,699	240	...	...
Assam	266,765	...	...	...	...
Baluchistan	49,867	...	...	...	...
Punjab	45,594	...	...	1,000	107,413
Burma	1,105	...	...	...	...
Total in 1904	7,561,338	138,733	1,066	50,847	107,413
Total in preceding year	6,812,725	171,223	1,005	35,238	90,667
Difference	+748,613	-32,490	+61	+15,609	+16,746

The other minerals for which the returns for output have been received are—Gems, Slate, Iron Ore, Magnesite, Graphite, Corundum, Fuller’s Earth, Jade and Fire-clay.

SECTION III.—Accidents.

General Remarks.

During the year 1904, at the mines regulated by the Indian Mines Regulation Act, 1901, there were 60 separate fatal accidents involving the loss of 73 lives. Compared with the average of the preceding three years this is a decrease of 10 in the number of accidents and a decrease of 12 in the number of deaths. Of the persons killed 61 were males and 12 females.

The fact that in some former years fatalities in abandoned pits to which the Act did not apply were included in the comparative statistics partly accounts for the reduction. These fatalities are placed in a supplementary list in Appendix I and reasons given for their exclusion from the statistics. During the year under review 5 accidents of this class were recorded. It must be understood, however, that the Act requires an owner to report every fatal accident which happens in or about the mine.

The following tables show at a glance the principal causes of accident and the mineral workings in which persons were killed during the year. For detailed statistical information reference must be made to the description of each fatal accident in Appendix I and to tables Nos. 2, 5, 6 and 7 in Appendix II.

TABLE No. 3.

ACCIDENTS, 1904.

Classified as to cause.

Cause of Accidents.	No. of accidents.	Percentages.	No. of deaths.	Percentages.
Explosions of fire-damp	2	3·33	2	2·74
Falls of roof	10	16·67	12	16·44
Falls of side	14	23·33	21	32·87
Shaft accidents	7	11·67	7	9·59
Explosives	3	5·00	4	5·48
Haulage	7	11·67	7	9·59
Miscellaneous below-ground	3	5·00	3	4·11
Surface	14	23·33	14	19·18
TOTAL	60	100·00	73	100·00

TABLE No. 4.

CLASSIFIED AS TO MINERAL WORKED.

Mineral worked.	Number of accidents.	Number of deaths.	DEATH-RATE PER 1,000 PERSONS EMPLOYED.		
			Below-ground.	Above-ground.	Below and above-ground.
Coal	49	55	·77	·45	·67
Mica	5	12	1·27	·20	·89
Limestone	2	2	·84	1·30	1·02
Manganese	1	1	·34	...	·24
Ruby	2	2	1·78	...	1·28
Mines other than above	1	1	·48	...	·23
TOTAL .	60	73	·82	·39	·68

Coal Mines—REMARKS ON ACCIDENTS.

The death-rates for coal-mines seem at first sight to compare very favourably with the death-rates of these mines in other countries. For instance, the death-rate per 1,000 persons employed *below-ground* in English coal mines for the ten years ending 31st December 1903 averaged 1·47 and the conclusion drawn from this might be that the English coal miner ran twice as much risk as his Indian brother. But, as pointed out in the introduction and in Sections I and II, the figures may be misleading unless allowance is made for sources of serious error. The death-rate of persons working below-ground per 1,000,000 tons raised was 7·27, the average English rate for ten years being 4·15. This death-rate varies with the hardness and other difficulties of working the coal as well as with the efficiency of the miner. It must be conceded, however, that at present the natural conditions which obtain at the majority of Indian coal mines would encourage an expectancy of a low death-rate. Fire-damp is uncommon, no deep coal is being worked, the roof of most of the seams is strong sandstone, and the joints, slips and smooth partings in the roof and coal, and the sudden crushes which cause so many accidents in England are very uncommon in India. But a study of the short descriptions of the fatal accidents given in Appendix I at once dissipates an optimistic forecast for the future. The accounts disclose a lamentable neglect of discipline, elementary mining precautions and reasonable supervision in many cases. Unless there is a great improvement in these respects very serious disasters are inevitable when the mines become deeper, larger, and are worked at a greater pressure. Too general an application must not be given to these remarks, for, happily, the management of some of the Indian coal mines is enlightened and energetic. Effective discipline and supervision are maintained, and efforts made to induce the miners and native officials to take an intelligent interest in their work, and duties. At these mines really efficient Indian officials may be found filling positions of trust and responsibility and skilled coal-cutters are not uncommon.

The following accidents require a longer notice than can be given in Appendix I.

Explosions of fire-damp.

There were two explosions of fire-damp with fatal results. Both were due to the use of naked lights.

No. 1 on the list happened at Dishergarh Mine in the Sanctoria Seam. Fire-damp was issuing from the faces of the winning galleries of this seam, but the ventilation was adequate and the current properly directed, and the gas did not accumulate until a brattice sheet fixed to divert the air current was temporarily removed. When this sheet was replaced the air current moved a little fire-damp, which had gathered whilst the ventilation was stagnant, and the gas came in contact with a naked light and an explosion resulted. Safety lamps were afterwards used in the place.

No. 2 on the list happened at Chota Dhemo Mine where naked lights were allowed and used throughout the pit. A miner went beyond a fence into a gallery where there was an accumulation of fire-damp and was fatally injured by the explosion which followed. The ventilation of the mine was unsatisfactory, for the ventilating power was not adequate and no means were taken

to nurse the feeble air-current through the workings. Gas had previously been found and had been removed either by the barbarous practice of dispersing the accumulations by fanning them with a piece of cloth, or by the still more dangerous practice of setting fire to the gas. In these circumstances it may be counted fortunate that an explosion involving the loss of a large number of lives did not result.

Falls of Roof and Sides.

There were 17 fatal accidents and 22 deaths from these causes in coal mines. Five of the accidents and seven of the deaths were caused by the persons who were killed working in places in which they had no right to be. (See Nos. 8, 9, 10, 14 and 18 in the list, Appendix I). In two cases fences were passed and two other accidents (involving the loss of three lives) were instances of "pillar robbing." A rule requiring places not actually in course of working and extension to be fenced, is now in force, but there is no regulation prohibiting persons going beyond fences. Strict and active supervision will, however, as a rule keep the miners in their proper working places, but power to enforce obedience by the infliction of a penalty is essential in some cases.

Shaft accidents.

Five lives were lost by shaft accidents.

No. 27 in the list.—This accident was caused by the winding rope breaking near the "capping," that is near the load end of the rope where the rope is fitted with an iron socket so that it can be attached to the cage or load. This is the weak spot of winding ropes and it is a reasonable and proper precaution to have the "capping" renewed every few months.

Three of the shaft accidents (Nos. 29, 30 and 31) were due to the shafts being inadequately fenced. Working shafts should be fitted with automatic fences, or where cages are not used, with sliding or lifting arrangements designed to fence the shaft when the top is not covered. General Rule 19 requires that shafts temporarily or permanently out of use shall be properly fenced. More attention to this is essential if accidents are to be avoided. Brick or stone walls or other substantial and permanent fences should be erected round old pits. The best method, however, of dealing with shafts when no longer required is to fill them to the surface with the debris which is always found round them. This removes all danger and prevents water from entering the mines.

Explosives.

Explosives are not much used in Indian coal mines, and the four deaths recorded are sufficiently explained in Appendix I.

Haulage.

All the accidents classed under this heading happened on the inclined planes driven into the outcrops of the seams. The full tubs are hauled up these inclines by means of stationary engines, and the empty tubs pull the rope down the incline for the return journey. With a few exceptions, this is the only mechanical haulage used in Indian collieries. Several of the accidents might have been prevented if proper stop-blocks had been provided, or if drags had been fixed behind the full tubs going up the inclines. One set of stop-blocks is not sufficient, additional blocks or runaway switches should be fixed between the blocks at the top of the inclines and the mouth of the drift, so that the whole train of tubs, after passing the top set of blocks, can hang on the rope before the second set is opened or the switches closed. The lower set of blocks should be very substantial, for a detached train of tubs has considerable momentum even if it has only a short distance to run to the blocks. Attention has previously been drawn to this matter, but emphatic repetition seems necessary.

At some mines separate travelling roads are provided so that the work-people can walk to and from their work without having to pass along the haulage roads.

Miscellaneous accidents.

These accidents are sufficiently explained in Appendix I.

Surface accidents.

Of the 12 deaths aboveground at coal mines 7 were on railways and tramways. The system of loading wagons by hand at present practised at most Indian collieries requires the employment of a large number of persons on the sidings. When wagons are being pushed in front of the locomotive a shunter should accompany the leading wagon. When wagons are about to be moved the people likely to be endangered should be warned. A whistle should be blown by the engine driver when the locomotive is approaching places where people work, or when the driver's sight is intercepted. These simple precautions would prevent many accidents on the sidings.

Mica Mines—(12 deaths).

The accident figures for these mines are very unsatisfactory for no less than 12 persons lost their lives in them during the year giving a death-rate of 1.27 per 1,000 persons employed underground. Mica mining has made great advances during the past few years as regards the number of persons employed and the output, but there has been no corresponding advance in systematic work. Mr. Grundy drew attention to this in last year's report. Primitive methods without much regard to safety and efficiency still appear to be the rule and supervision and discipline are almost unknown words. Mica occurs in nodules or "books" distributed irregularly in the mica bearing rocks. This makes the mining speculative and leads to unsystematic methods of working. When the mica is found the work is pushed with feverish energy. Many of the mines are owned by small companies without much command of capital, and instead of vertical shafts being sunk and a proper system of galleries being laid out or quarries in steps being designed, the mica is followed by speculative pits, slopes and galleries, and the result is that not only is unnecessary risk run, but a large quantity of valuable mineral is lost or destroyed. Many of the mica mines are open excavations or quarries.

The most serious mining accident in India during the year happened at a mica mine (See No. 22, Appendix 1). On 26th September at 2-30 in the afternoon an open cutting was being cleaned out for a mine pit. Sixteen persons were at work in the excavation when there was a heavy fall of loose gravelly earth from the side above them and nine were buried of whom only two were rescued alive. The earth fell from a slip on the hanging side of the excavation. This slip had evidently been visible for several days, but the men had been allowed to work under it without any precautions whatever being taken. When Mr. Grundy investigated the accident he found that the agent and manager were apparently unable to understand how to work such a place in safety. The "mate" or overman who was actually in charge of the work lost his life in the accident. He was said to have been a capable and experienced miner, but if this were so, it is difficult to understand why he worked and allowed others to work in such obvious danger. No timber was provided and no other means taken to make the side safe, and it is probable that the soft earth at one side of the excavation had been undermined. If accidents of this class are to be avoided in future, it will be necessary to place the Mica mines under the control of qualified managers and to formulate rules to regulate the work. The question is under consideration.

Manganese and Limestone Mines.

These minerals are worked in open quarries. At present there are no true mines.

Accident No. 16 in the list happened in a large limestone quarry at Katni. At this quarry a heavy mass of refuse lime was piled on the cliff of the quarry near the edge. The weight of this lime caused a large piece of stone to burst off the side and fall to the bottom of the quarry. One man was killed and two others seriously injured by the fall. The investigation of the accident disclosed the fact that the dangerous practice of piling rubbish on edges of limestone quarries was a common one in the district. There is no regulation under the Mines Act prohibiting this practice, but a communication from the Mines Department on the subject was addressed to the Deputy Commissioner, and he issued a warning to the mine owners in the district.

The other accidents in manganese, limestone, gold and ruby mines are sufficiently explained in Appendix I. There were no fatal accidents in any of the other mines.

SECTION IV.—Prosecutions, Discipline, and Additions to the Act.

This section is superfluous as regards prosecutions for no legal proceedings were instituted against either owners, or agents or managers or workpeople for violation of the Act during the year under review. But in view of the new regulations and rules a few remarks upon discipline may be made.

The Indian Mines Act, 1901, is a skeleton Act and contains few provisions for the contravention of which a penalty can be inflicted. During the year, however, a code of rules applying to all coal mines in British India was made under Section 20 of the Act. These rules impose many important duties and obligations upon those responsible for the proper working of the mines and it may be noted that under Section 14 of the Act it is assumed that the owner, agent or manager is guilty in the event of the violation of the rules by *any person whomsoever* unless he proves that he had taken all reasonable means by publishing and to the best of his power enforcing the rules to prevent such contravention. This is a new and onerous responsibility, and it is advisable therefore, for the owner, agent or manager of every coal mine to appoint competent persons to carry out the rules: for him to instruct these persons in their duties and to personally ascertain from time to time how far the rules are understood and observed by the officials and workpeople of the mine.

The code of regulating general rules was made by notification dated Calcutta, 10th March 1904. It contains provisions relating to (1) single shafts and outlets; (2) raising and lowering persons; (3) roads and working places; (4) plans; (5) explosives; (6) ventilation and lighting; (7) miscellaneous (fencing, etc.). Another notification, dated 8th December 1904, requires that the managing agent, the owner, or the manager of every mine shall furnish an annual statement, showing the number of persons employed, the output of mineral and other prescribed particulars relating to the mine.

These notifications are given in Appendix IV.

No "Special Rules" were established under Section 21 during the year. It will now be necessary for owners, agents and managers to formulate such rules, so that the responsibilities of their subordinate officials and the workpeople may be made clear and their duties assigned.

SECTION V.—General Remarks.

Coal-cutting by machinery.

At present coal-cutting machines are only used at two collieries in India. Coal cutting by machinery has made considerable progress in England during the last few years and though most of the machines are used in longwall workings, heading machines have also proved economical for driving narrow galleries. Nearly all the coal in India is won by the "bord and pillar" system, that is by cutting the seams into pillars by driving galleries. At present the pillars are seldom extracted. The cheapness of Indian labour compared with European and American has probably prevented enterprise in the use of machines being shown in India. When the efficiency of the Indian miner is considered in comparison with that of the English miner there would, however, appear to be scope for the use of machines in the winning places of Indian coal mines. The Indian miners have shown themselves quite capable of managing the machines, and if a doubt remains as to a reduction in the cost per ton of machine-cut coal, there can be no question as regards the great economy of time in favour of the machines. With the machines at present in use, a gallery could be driven at least twice as far in a given time as by hand labour. If machines specially designed to meet the conditions of Indian mining were used, this difference would be much greater.

Land Acquisition (Mines) Act, 1885.

The enquiries and inspections on behalf of the Government under this Act are now undertaken by the Mines Department, one of the Inspectors being

nominated the officer to conduct the enquiry. Owing to the development of railways in the mining districts and to the daily extension of the mines the enquiries have become more numerous and more important. They involve very careful enquiry and report by the Inspector and the preparation of accurate plans by the surveyors under his directions. The inquiries numbered 22 during the year under review. The particulars of them are given in Appendix III.

Ankylostomiasis.

For the past few years this disease has been very troublesome in European mines, especially in Germany and Hungary. At some of the Westphalian collieries, at one time, 40 per cent. of the miners were suffering, and the epidemic was only checked by a most lavish expenditure of money, and by the enforcement of stringent sanitary regulations.

The disease is caused by the presence, in the small intestine, of a species of nematode worm about half an inch long. The worms attach themselves to the membrane of the intestine by means of 4 hooks round their mouths and the result is an increase in the volume of the blood, but a most serious decrease in the percentage of hæmoglobin or the oxygen-carrying constituent. The worms are unable to reproduce themselves in the intestine, but the female lays an enormous number of eggs which pass out of the body with the fæces and hatch under suitable conditions. The eggs will not hatch nor will the larvæ develop except in a moist medium and in a temperature between about 65° and 95° Fahrenheit. The most favourable temperatures would seem to be between 70° and 85° Fahrenheit, and it has been found that exposure to direct or even diffuse sunshine is sufficient to prevent the development of the larvæ.

When the larvæ are mature they can reach their destination in the human body either through the mouth or through the skin. The symptoms of the disease are extreme anæmia, a shortness of breath on exertion, and a loss of energy. Eventually the patient is unable to work and in bad cases loses strength rapidly and pneumonia or phthisis supervenes and he dies.

The disease has given the English and German Governments the most serious concern, and eminent scientists have been appointed to make investigations. These investigations have brought to light many new facts relating to the diagnosis and treatment of the disease and to the life history of the worm.

Indian coal mines are as a rule hot and damp and of course no daylight can reach the workings. Such environments are ideal for the development of the larvæ and as ankylostomiasis is endemic in India, it will be surprising if some of the mines are not already infected. No information about this is at present available, but the subject is worthy of the serious attention of medical officers stationed in colliery districts. Any contribution to the information which is being collected about the disease would be welcomed in Europe and might prove of great value to India.

Educational.

Four Indian students who have been given Government scholarships are at present studying mining at Birmingham University. This is a new departure and should be of great benefit to India, but it does not reach the masses, and the arrangements which are being made to teach mining at Indian colleges will only benefit those students who have the leisure and means to enable them to leave their distant homes to attend the college terms. A student with only brains and ambition as assets, and employed in an Indian mining district, and desirous of becoming a qualified mining engineer has little opportunity of learning the theory of the profession. The delivery of lectures and the organisation of evening mining classes in colliery districts would give such men their opportunity. This method of spreading mining knowledge would be of the nature of an experiment in India, but it seems to be worth trying. It has been previously advocated and has the approval of the Committee and Technical sub-committee of the Indian Mining Association.

Official duties.

A summary of the active work of inspection done during the year 1904 is included in Table 1, Appendix II, and a list of Land Acquisition Enquiries held

will be found in Appendix III, but the duties of the Inspectors are so many and various that it would be impossible to classify them without giving a mass of detail. The new rules and regulations under the Act which have recently come into force will add very greatly to the duties and responsibilities of the staff.

Mr. Grundy acted as Chief Inspector from 8th April to 18th December and the records show that he had a year of very hard work and was most conscientious in the discharge of his duty. Mr. Adams has also worked with energy and ability. He has relinquished his English appointment and is now permanently attached to the Indian service and the department is to be congratulated upon having secured his services. Mr. Gough's appointment was temporary and he only acted from the 28th September to 18th December, but during that period he showed that he was well fitted for his post.

Mining Boards.

The only Mining Board at present constituted under Section 9 of the Act is for Lower Bengal. That district is the most important as regards mining, for it contains coal mines which give 93 per cent. of the output of coal from British India. The Board held 5 meetings during the year, and gave valuable advice upon the many important questions which were referred to it.

Inspections by District Officers.

Section 5 of the Act provides that the District Magistrate may exercise such of the powers and perform such of the duties of an Inspector of Mines as the Local Government may, by general or special order, direct. These powers are exercised to a considerable extent in some districts. A list of the inspections is given in Appendix 2, Table No. 10.

It is not possible for any one without technical and scientific knowledge and the training of a mining engineer to effectively criticise mining methods, or to make suggestions for better and safer working. It is undesirable that this should be attempted. With these limitations, the visit of a Magistrate or a District Medical Officer to a mine may be exceedingly useful. His local knowledge, and the wide powers conferred upon him fit him to point out and to check social and sanitary evils. Many of the officers show marked energy in these respects.

I have the honour to be,

Sir,

Your most obedient servant,

W. H. PICKERING,

Chief Inspector of Mines in India.

APPENDIX I.

FATAL ACCIDENTS, 1904.

No. of accident.	Date and hour of accident.	Name of Mine and situation.	Name of Owner.	Name, age, sex, and occupation of person killed.	Name of Mineral worked.	Cause of accident and remarks.
EXPLOSIONS OF FIRE-DAMP (2 deaths).						
1	3rd July, 6 A.M.	Dishergarh Mine, Dishergarh, Burdwan, Bengal.	Equitable Coal Co., Ltd.	Bonomali Mali, 36, (m.), Coal-cutter.	Coal .	<i>Died 4th July.</i> —Explosion of fire-damp in a working place. Cause—The use of open lights. <i>See Report, page 6.</i> Inspection and enquiry made.
2	30th August, 7-30 A.M.	No. 6 Pit, Chhota Dhemo Mine, Chhota Dhemo, Burdwan, Bengal.	Chhota Dhemo Coal Co.	Nian Majhi, 30, (m.), Coal-cutter.	Coal .	<i>Died 3rd September.</i> —He went beyond a fence with an open light and was fatally injured by an explosion of fire-damp. <i>See Report, page 6.</i> Inspection and enquiry made.
FALLS OF ROOF AND SIDE (36 deaths).						
(a) Falls of roof (12 deaths).						
3	5th February, 12-30 P.M.	Borra Mine, Borra, Burdwan, Bengal.	New Birbhum Coal Co., Ltd.	Soni Korani, 35, (f.), Coal-carrier.	Coal .	Killed by a ton of coal falling upon her from the roof whilst she was walking along a gallery. Cause of fall—Converging smooth joints. Inspection and enquiry made.
4	1st June, 5 P.M.	Takrai Mine, Khost, Thal Chotiali, Baluchistan.	North-Western Railway.	Kalu, 20, (m.), Pack-coolie.	Coal .	This is a steep mine having an inclination of 45°. Deceased was standing on planks in a long wall face when a fall of roof precipitated him into the goaf 30 feet below and he was killed.
5	11th June, 12 noon.	Lakamandua Mine, Lakamandua, Koderma, Hazaribagh, Bengal.	Chota Nagpur Mica Syndicate, Ltd.	Dhunniy Mia, 35, (m.), Driller.	Mica .	Fall of rock from the roof. It is said that he was cutting out a pillar without orders.
6	14th June, 3 P.M.	Zardalu Mine, Khost Colliery, Khost, Thal Chotiali, Baluchistan.	North-Western Railway.	Ghulam Mohammed, 35, (m.), Propman.	Coal .	<i>Died 26th June.</i> —His arm was slightly injured by a fall of roof in an airway where he was drawing timber. Erysipelas supervened, with fatal results.
7	25th June, 8 P.M.	Tikak Mine, Tikak, Lakhimpur, Assam.	Assam Railways and Trading Co., Ltd.	Sitaram, 37, (m.), Nunda, 26, (m.), Fillers.	Coal .	About 30 tons of coal fell from the roof of an opening without any warning and killed the two men on the spot.
8	30th July, 11-30 A.M.	Kurkend Mine, Kurkend, Jherria, Manbhum, Bengal.	Kurkend Coal Concern.	Jhari Toori, 30, (m.), Coal-cutter.	Coal .	In both these cases the men who were killed went beyond fences to get coal in places in which they had no right to work and were killed by falls of roof. <i>See Report, page 7.</i> Inspections and enquiries made.
9	31st August, 8-45 P.M.	No. 17 Pit, Charanpur Mine, Charanpur, Burdwan, Bengal.	Apcar and Co.	Nungo Maji, 30, (m.), Multa Maji, 20, (m.), Coal-cutters.	Coal .	
10	20th September, 6 P.M.	Kendwadih Mine, Kendwadih, Jherria, Manbhum, Bengal.	Hariladi Coal Co., Ltd.	Sorma Maghian, 14, (f.), Coal-carrier.	Coal .	She went with her brother to get coal in a gallery which was not their proper working place. A fall of roof occurred and she was killed. <i>See Report, page 7.</i> Inspection and enquiry made.
11	22nd September, 4 P.M.	Ledo Valley Mine, Ledo, Lakhimpur, Assam.	Assam Railways and Trading Co., Ltd.	Pirtoo, 26, (m.), Coal-cutter.	Coal .	Fall of roof in a working place. Cause—A "bump."

APPENDIX I—continued.

FATAL ACCIDENTS, 1904—continued.

No. of accident.	Date and hour of Accident.	Name of Mine and situation.	Name of Owner.	Name, age, sex, and occupation of person killed.	Name of Mineral worked.	Cause of accident and remarks.
12	16th November, 4 P.M.	Ledo Valley Mine, Ledo, Lakhimpur, Assam.	Assam Railways and Trading Co., Ltd.	Mathu, 36, (m.), Timber-setter.	Coal .	He was timbering a level when a "bump" dislodged about a ton of coal which fell upon him and injured him so severely that he died in a few hours.
(b)—Falls of side (24 deaths).						
13	26th March, 1-30 P.M.	No. 3 Mine, Khost Colliery, Khost, Thal Chotiali, Baluchistan.	North-Western Railway.	Jan Mahomed, 20, (m.) Carpenter's coolie.	Coal .	Died 22nd April.—He was setting timber when a piece of shale fell from the side from a smooth parting and broke his thigh.
14	15th April, 2 P.M.	No. 6 Pit A., Salanpur Mine, Bonbiddi, Burdwan, Bengal.	Borrea Coal Co., Ltd.	Mangli Meghan, 30, (f.), Goomi Meghan, 17, (f.) Coal-carriers.	Coal .	It is alleged that three men and three women including the deceased were "robbing" a pillar when about 10 tons of loosened coal fell and killed two of the women. See Report, page 7. Inspection and enquiry made.
15	4th May, 11 A.M.	No. 6 Pit A. Salanpur Mine, Bonbiddi, Burdwan, Bengal.	Borrea Coal Co., Ltd.	Laru Poddar, 20, (m.), Stone-cutter.	Coal .	Died 25th September.—Fatally injured by a fall of stone from the side of a level tunnel which was being driven through a fault. Inspection and enquiry made.
16	3rd June, 10 A.M.	Katni Lime Works, Marwara, Jubbulpore, Central Provinces.	Hari Keshab Ghatak.	Bajrangi Kalar, 38, (m.), Labourer.	Limestone .	Fall of side in a limestone quarry killing one man and injuring two others. See Report, page 8. Inspection and enquiry made.
17	6th July, 5-15 P.M.	Minakshi Mine, Marupur, Nellore, Madras.	W. J. Eales .	Rapur Subbadu, 20, (m.) Jumperman. Bodugu Subbadu, 14, (m.), Mica-picker.	Mica .	Fall of earth from the side of a pit 21 feet deep and 18 feet wide.
18	24th August, 1 P.M.	Jogta Mine, Jogta, Jherria, Maubhum, Bengal.	Agabeg Brothers	Sooma Rajwar, 32, (m.), Coal-cutter.	Coal .	He went into the old workings to "rob" a pillar, and was killed by a fall of side whilst he was under-cutting. See Report, page 7. Inspection and enquiry made.
19	5th September, 2 P.M.	Warora Mine, Warora, Chanda, Central Provinces.	Government of India.	Raghubeer, 40, (m.), Coal-cutter.	Coal .	Fall of coal from the side of a gallery which he was assisting to enlarge. The coal had been loosened by a shot. Inspection and enquiry made.
20	5th September, 3 P.M.	An open hill-cutting worked for rubies, Payagon, Kyatpyin, Mogok, Upper Burma.	.....	Po Seinda, alias Po Sayat, 67, (m.), Coolie.	Ruby .	He went into this old mine apparently to illicitly mine for rubies and was killed by a fall of stone. Inspection and enquiry made.
21	22nd September, 11-50 P.M.	No. 6 Pit A. Salanpur Mine, Bonbiddi, Burdwan, Bengal.	Borrea Coal Co., Ltd.	Fattah Manjhi, 27, (m.), Coal-cutter.	Coal .	Killed by a fall of coal from the corner of a pillar. The officials had noticed that the coal appeared to be dangerous and he was assisting to get it down. Inspection and enquiry made.
22	26th September, 2-30 P.M.	Hannumanoya or 41B Mica Mine, Reserved Forest, Koderma, Hazaribagh, Bengal.	Akshoy Kumar Gupta.	Karu Singh, (m.), Mate. Behari Gope, (m.) Fossoorooca, (m.) Chamna Gope, (m.) Shookia Kahar, (m.) Panaya, (f.) Hardyia, (m.) Coolies.	Mica .	Fall of earth from the side of an open cutting. See Report, page 8. Inspection and enquiry made.

APPENDIX I—*continued.*FATAL ACCIDENTS, 1904—*continued.*

No. of accident.	Date and hour of accident.	Name of Mine and situation.	Name of Owner.	Name, age, sex, and occupation of person killed.	Name of Mineral worked.	Cause of accident and remarks.
23	3rd November, 12 Noon.	No. 2 Incline, Sodepur Mine, Sodepur, Burdwan, Bengal.	Bengal Coal Co., Ltd.	Mukunda Kora, 25, (m.), Kista Kora, 35, (m.), Coal-cutters.	Coal .	Mukunda Kora was standing on a ladder wedging down coal. When the coal fell he overbalanced and fell with it, and he and Kista Kora were fatally injured by the falling coal. Inspection and enquiry made.
24	9th November, 6-30 P.M.	Bhulanbarari Mine, Bhulanbarari, Jherria, Manbhum, Bengal.	Barari Coal Concern.	Chandi Mallikum, 35, (f.), Rabi Mallikum, 40, (f.), Coal-carriers.	Coal .	Were carrying coal from the face of a gallery and were killed by a fall of coal from the corner of a pillar. Inspection and enquiry made.
25	25th November 1 A.M.	Red Hill Mine, Mogok, Upper Burma.	The Ruby Mines, Ltd.	Qua Lin, 44, (m.), Coolie.	Ruby .	Died 27th November.—A piece of rock fell out of the "side earth" and fatally injured him. Inspection and enquiry made.
26	14th December, 10 A.M.	Mansar Mine, Mansar, Nagpur, Central Provinces.	Central Provinces Prospecting Syndicate.	Hugria, 16, (m.), Miner.	Manganese .	Died 22nd December.—A piece of ore fell from the side of a quarry and crushed his big toe. Fever and suppuration supervened and he died.

IN SHAFTS (7 deaths).

(a) *Ropes and chains breaking* (1 death)

27	8th June, 3 P.M.	Raghunathbatti Mine, Raghunathbatti, Burdwan, Bengal.	Navigation Coal Co., Ltd.	Girish Bowri, 32, (m.), Coal-cutter.	Coal .	A winding rope broke near the capping when a bucket of coal was being raised. The load fell upon Bowri who was in the bottom of the shaft and killed him. See Report, page 7. Inspection and enquiry made.
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(b) *Whilst ascending by machinery* (1 death).

28	21st October, 2 P.M.	Hariladih Mine, Hariladih, Jherria, Manbhum, Bengal.	Hariladih Coal Co., Ltd.	Mohan Kahar, 25, (m.), Pumpman.	Coal .	He was being raised after examining the water below a pump in a shaft, when his head struck against the pump platform and he was killed. Inspection and enquiry made.
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(c) *Falling into shafts from the surface* (3 deaths).

29	9th January, 11-30 P.M.	No. 5 Pit, Jherria Khas Mine, Jherria, Manbhum, Bengal.	Standard Coal Co., Ltd.	Dhemu Bhuya, 26, (m.), Hazri-coolie.	Coal .	Fell into a working shaft which was temporarily unfenced. See Report, page 7. Inspection and enquiry made.
30	19th May, 11 A.M.	Domuria Prospecting, Domchanch, Hazaribagh, Bengal.	F. F. Chrestien and Co.	Akla Ghatawal, 24, (m.), Coolie.	Mica .	He was working near the top of an unfenced old pit shaft, and fell into it with some loose stones. See Report, page 7.
31	28th December, 7-30 P.M.	Pumping Pit, Alkusa Mine, Alkusa, Jherria, Manbhum, Bengal.	Raniganj Coal Association, Ltd.	Dasso Meah, 35, (m.), Surface-labourer.	Coal .	Fell into a pit shaft in the dark. The shaft does not appear to have been properly fenced. See Report, page 7.

(d) *Things falling from the surface* (1 death).

32	7th November, 0-36 A.M.	No. 3 Sinking Pit, Bankola Mine, Ukbara, Burdwan, Bengal.	Eastern Coal Co., Ltd.	Chota Bhagat, 36, (m.), Sinker.	Coal .	Died 13th November.—The split pin holding the hand chain wheel of a lifting block in position broke. The wheel became detached and fell into the shaft in which 9 men were at work, and the deceased was fatally injured. Inspection and enquiry made.
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APPENDIX I—continued.

FATAL ACCIDENTS, 1904—continued.

No. of accident.	Date of hour and accident.	Name of Mine and situation.	Name of Owner.	Name, age, sex, and occupation of person killed.	Name of Mineral worked.	Cause of accident and remarks.
(e) <i>Falling from part way down (1 death).</i>						
33	7th October, 7 P.M.	Kabulayatkatti Mine, Kabulayatkatti, Dharwar, Bombay.	Dharwar Gold Mines, Ltd.	Narsimuloo, 20, (m.), Coolie.	Gold.	<i>Died 17th October.</i> —When climbing a ladder in a winze he fell a distance of 15 feet and injured his thigh. Peritonitis supervened and he died.
BY EXPLOSIVES (4 DEATHS).						
34	26th January, 1-30 P.M.	Dishergarh Mine, Dishergarh, Burdwan, Bengal.	Equitable Coal Co., Ltd.	Pabu Lal, 26, (m.), Jahandar Sbaw, 40, (m.), <i>Blasting-coolies.</i>	Coal.	<i>Babu Lal died 22nd February and J. Shaw, 29th January</i> —Fatally burned when carelessly handling gunpowder and a kerosine lamp. Inspection and enquiry made.
35	11th April, 2 P.M.	Khas Jherria Mine, Khas Jherria, Jherria, Manbhum, Bengal.	F. W. Heilgers and Co.	Pirtam Gope, 32, (m.), <i>Sinker.</i>	Coal.	A dynamite shot had missed fire and Gope was tampering with the place when the charge exploded. The investigation of the accident disclosed great laxity of supervision and failure to make the sinkers acquainted with the shot firing rules. Inspection and enquiry made.
36	3rd June, 6-30 P.M.	Murulidi Mine, Murulidi, Jherria, Manbhum, Bengal.	Finlay, Muir & Co.	Phagu Dhobi, 38, (m.), <i>Sinking Contractor.</i>	Coal.	He went down the pit to fire six dynamite shots, had lighted the fuses of 5 and was apparently lighting the 6th when the first shot exploded (the others following) and he was killed. Inspection and enquiry made.
HAULAGE (7 DEATHS.)						
37	23rd January, 9-30 P.M.	Dandot Mine, Dandot, Jhelum, Punjab.	North-Western Railway.	Wazir, 35, (m.), <i>Coolie.</i>	Coal.	<i>Died 5th February.</i> —He was riding against orders on a train of full tubs which was being brought out of the mine and was crushed between the load and the roof in a low arch-way. Inspection and enquiry made.
38	27th May, 8-30 A.M.	No. 7 Incline, Kustore Mine, Kustore, Jherria, Manbhum, Bengal.	Raniganj Coal Association, Ltd.	Haril Singh, 38, (m.), <i>Line Khalassi or Cleaner.</i>	Coal.	A train of 9 empty tubs was being lowered into a drift when six of them became detached and ran amain. Neither stop-blocks nor run-away switches were provided and the tubs dashed into the mine and killed Singh. Inspection and enquiry made.
39	13th August, 4 A.M.	Bhulanbarari Mine, Bhulanbarari, Jherria, Manbhum, Bengal.	Barari Coal Concern.	Khudiram Malik, 21, (m.), <i>Coal-cutter.</i>	Coal.	The clutch which fastened the drum of a hauling engine to the shaft broke whilst a train of empty tubs was being lowered into the mine and the tubs dashed down the incline and killed Malik who was 350 feet from the entrance. Inspection and enquiry made.
40	28th August, 2 A.M.	Bhuggutdih Mine, Bhuggutdih, Jherria, Manbhum, Bengal.	Bengal Nagpur Coal Co., Ltd.	Metin Mahatin, 45, (f.), <i>Coal-carrier.</i>	Coal.	A train of 4 empty tubs was being lowered down an incline into the mine. One became uncoupled through the pin of the shackle breaking or falling out and the tub ran into the mine and killed Mahatin. The pin was not found. Inspection and enquiry made.

APPENDIX I—continued.

FATAL ACCIDENTS, 1904 - continued.

No. of accident.	Date and hour of accident.	Name of Mine and situation.	Name of Owner.	Name, age, sex, and occupation of person killed.	Name of Mineral worked.	Cause of accident and remarks.
41	21st September, 8 A.M.	Alkusa Mine, Alkusa, Jherria, Manbhum, Bengal.	Raniganj Coal Association, Ltd.	Ram Sundar Panday, 40, (m.), Chaprassi.	Coal .	He appears to have gone down an incline without a light, and was killed by a train of full tubs when standing in a narrow part of the road. Inspection and enquiry made.
42	19th November, 10 A.M.	Bhalgora Mine, Bhalgora, Jherria, Manbhum, Bengal.	Bhalgora Coal Co., Ltd.	Bhondur Chamar, 35, (m.), Miner.	Coal .	Eight full tubs were being hauled up an incline and had been hauled 300 feet when a coupling parted, and 6 of the tubs ran back to the bottom of the incline and killed deceased. It is probable that the tubs were not properly coupled. No drag was provided to prevent the tubs running back. Inspection and enquiry made.
43	23rd December, 11 P.M.	Gladstone or No. 6 Mine, Sodepur Colliery, Sodepur, Burdwan, Bengal.	Bengal Coal Co., Ltd.	Kilu Singh, 20, (m.), Trammer.	Coal .	He was standing with two others near the bottom of a jig brow when a tub was inadvertently allowed to run down without the rope. The men heard the runaway tub coming but Singh tried to rescue his lamp which he had left in the roadway and was killed. Inspection and enquiry made.
<i>Miscellaneous below-ground (3 deaths).</i>						
44	16th March, 2 A.M.	No. 2 Pit, Kendwadih Mine, Kendwadih, Jherria, Manbhum, Bengal.	Hariladih Coal Co., Ltd.	Lattu Rai, 26, (m.), Coal-cutter.	Coal .	After carrying a basket of coal to the pit bottom he slipped and fell, and was dead when picked up.
45	6th September, 1 P.M.	No. 2 Pit, Toposi Mine, Toposi, Burdwan, Bengal.	Raniganj Coal Association, Ltd.	Bhagan Bowri, 30, (m.), Coolie.	Coal .	He was employed to carry water from an accumulation 8 feet deep. He was found drowned in the water, and it is assumed he slipped in when in a stooping position. Inspection and enquiry made.
46	15th October, 10 A.M.	Dharam Incline, Bhaga Mine, Bhaga, Jherria, Manbhum, Bengal.	Jherria Colliery Co., Ltd.	Samaru Chamar, 30, (m.), Coal-cutter.	Coal .	Was getting down shale from the roof when it fell suddenly and he fell backwards and was picked up dead. A little of the shale may have struck him though there were no bruises on his body, and the shock and fright caused failure of the heart. Inspection and enquiry made.
<i>ABOVE GROUND (14 DEATHS).</i>						
<i>(a) By Machinery (1 death).</i>						
47	9th June, 10-30 A.M.	Jherria Khas Mine, Jherria Khas, Jherria, Manbhum, Bengal.	Standard Coal Co., Ltd.	Budhon Min, 4, (m.), Winding-Khalassi.	Coal .	<i>Died 10th June.</i> - Was foolishly trying to lower a rope on to a friction roller in front of the engine whilst the machinery was in motion. He slipped and fell with his arm on the pinion wheel and was fatally injured. The roller is to be replaced by a sliding pulley which should prevent similar accidents in future. Inspection and enquiry made.
<i>(b) On Railways and Tramways (7 deaths).</i>						
48	10th May, 3-30 P.M.	Sarkari Depot, Sodepur Mine, Sodepur, Burdwan, Bengal.	Bengal Coal Co., Ltd.	Surja Majhi, 60, (m.), Dust screener.	Coal .	The tram line locomotive was pushing three empty wagons in front of it during a storm. The deceased slipped and fell when trying to carry a basket of coal across the line in front of the moving wagons and was run over.

APPENDIX I—continued.

FATAL ACCIDENTS, 1904—continued.

No. of accident.	Date and hour of accident	Name of Mine and situation.	Name of Owner.	Name, age, sex, and occupation of person killed.	Name of Mineral worked.	Cause of accident and remarks.
49	25th May 12 P.M.	Charanpur Mine, Charanpur, Burdwan, Bengal.	Apear and Co.	Sufal Sootradhar, 22, (m.), <i>Loading coolie.</i>	Coal .	<i>Died 26th May.</i> —He was pushing a tram along the loading wharf when he slipped and fell and another tram which was following him, ran upon him and he was fatally injured. Inspection and enquiry made.
50	15th July 7-30 A.M.	Khuldia Mine, Khuldia, Giridih, Hazaribagh, Bengal.	Bengal Coal Co., Ld.	Kalipado Bowri, 12, (m.), <i>Stone-picker.</i>	Coal .	He was foolishly sitting eating his food on the buffer of the front wagon of a train of 8 which were standing on a siding. Two other wagons were bumped into the standing train, and the impact threw the boy from the buffer and the wagons ran over him. Inspection and enquiry made.
51	30th August 7 A.M.	Upper Ledo Mine, Ledo, Lakhimpur, Assam.	Assam Railways and Trading Co., Ld.	Muntora, 32, (f.), <i>Coolie.</i>	Coal .	She was proceeding to work along a tramway, and instead of walking on the path provided was between the lines and was run over and killed.
52	25th October 5-30 P.M.	Khuldia Mine, Khuldia, Giridih, Hazaribagh, Bengal.	Bengal Coal Co., Ld.	Moulia Jolahin, 22, (f.), <i>Hazri kamin.</i>	Coal .	Run over and killed by a train of tipping wagons which was being pushed in front of the locomotive. Inspection and enquiry made.
53	2nd November 8 P.M.	Bansdeopur Mine, Bansdeopur, Jherria, Manbhum, Bengal.	Bansdeopur Coal Co., Ld.	Laohn Kamar, 20, (m.), <i>Coal-cutter.</i>	Coal .	<i>Died 3rd November.</i> —He was riding on a train of full tubs and fell when attempting to get off. The tubs ran over him, his clothes took fire from the lamp he was carrying and his injuries proved fatal. He had no right to ride. Inspection and enquiry made.
54	2nd December 4-40 P.M.	Serampore Mine, Giridih, Hazaribagh, Bengal.	East Indian Railway Co.	Mangri Dusadhin, 20, (f.), <i>Loading kamin.</i>	Coal .	Run over and killed by the metre gauge locomotive. A proper look-out does not appear to have been kept nor sufficient warning given by whistling. The locomotive was running at a great speed. Inspection and enquiry made.

(c) Miscellaneous (6 deaths).

55	24th January, 3 P.M.	No. 32, Laganwa Mine, Koderma, Hazaribagh, Bengal.	The Dickson- Irwin (Koder- ma) Mica Min- ing Syndicate, Ld.	Barua Teli, 16, (m.), <i>Carrier.</i>	Mica .	He took shelter during shot firing under overhanging loose earth which had been put on the surface from an old mine. Ten tons of the earth fell upon him and killed him. Inspection and enquiry made.
56	23rd April, 10 A.M.	No. 16, Loco-Shed, Serampore Mine, Giridih, Hazaribagh, Bengal.	East Indian Railway Co.	Torap Ali Mullick, 25, (m.), <i>Fireman.</i>	Coal .	<i>Died 1st October.</i> —Fatally injured by falling from a ladder on which he was standing to work. Inspection and enquiry made.
57	25th May, 9-30 A.M.	Bulliaree Mine, Bulliaree, Jherria, Manbhum, Bengal.	East Indian Coal Co., Ld.	Lillu Dosad, 60, (m.), <i>Surface-coolie.</i>	Coal .	A wooden roller accidentally fell from a platform on which men were standing to "point" a newly completed chimney. The roller fell upon Dosad who was working at the foot of the chimney and killed him. Inspection and enquiry made.

APPENDIX I—*continued.*FATAL ACCIDENTS, 1904—*concluded.*

No. of accident.	Date and hour of accident.	Name of Mine and situation.	Name of Owner.	Name, age, sex, and occupation of person killed.	Name of Mineral worked.	Cause of accident and remarks.
58	28th July, 7-30 A.M.	Aldih Mine, Aldih, Burdwan, Bengal.	Aldih Coal Co., Ltd.	Sheik Amin Mea, 16, (m.), <i>Assistant fitter-coolie.</i>	Coal . .	A crab winch was being lowered into a railway wagon by another winch, when the chain broke and the winch slipped down the timbers to the ground and killed Mea. Inspection and enquiry made.
59	10th December 8-30 P.M.	Salanpur Mine, Bonbiddi, Burdwan, Bengal.	Borrea Coal Co., Ltd.	Elahi Khan, 47, (m.), <i>Fireman.</i>	Coal . .	Fell from the tippler platform on to the railway siding — a distance of 18½ feet and was killed by the fall. Inspection and enquiry made.
60	24th December 1 P.M.	Katni Limestone Quarry, Marwara, Jubbulpore, Central Provinces.	Hari Keshab Ghatak.	Sattia Kolin, 60, (f.), <i>Labourer.</i>	Limestone .	Is said to have fallen and been killed by the shock after being startled by a shot being fired in the quarry 100 feet from where she was working.

APPENDIX I—concluded.

FATAL ACCIDENTS, 1904.

No. of accident.	Date and hour of accident.	Name of Mine and situation.	Name of Owner.	Name, age, sex, and occupation of person killed.	Name of Mineral worked.	Reason for exclusion.	Cause of accident and remarks.
DEATHS NOT INCLUDED IN THE STATISTICS. (5 DEATHS.)							
1	15th July	No. 3 Incline, Barra Dhemu Mine, Barra Dhemu, Purdwan, Bengal.	Raghu Nandan Prasad.	...	Coal	Abandoned Mine, and deceased not employed.	Found dead on 16th July at the bottom of an opening to the incline of an abandoned mine. The opening had been fenced but the fence was out of repair and useless. Inspection and enquiry made.
2	31st July	Bulliaree Mine, Bulliaree, Jherria, Manbhum, Bengal.	East Indian Coal Co., Ltd.	Lugan Ghatoornee, 40, (f.), <i>Not employed.</i>	Coal	Not employed.	She was found dead at the bottom of a pit shaft on 2nd August having probably fallen into the shaft on the evening of 31st July. There was a solid brick work pillar 31' x 28' broad and from 3' to 5' high round the shaft but otherwise it was unfenced. Inspection and enquiry made.
3	4th September	Kankani Mine, Kankani, Jherria, Manbhum, Bengal.	Eastern Coal Co., Ltd.	Jasoda Dosadin, 25, (f.), <i>Not employed.</i>	Coal	Not employed and Mine abandoned.	Fell into an old pit shaft from which she was drawing water and was drowned. The top of the shaft was surrounded by a brick wall. Inspection and enquiry made.
4	20th September 12 noon.	Khas Jherria Mine, Khas Jherria, Jherria, Manbhum, Bengal.	F. W. Heilgers & Co.	Pagali Jolin, 25, (f.), <i>Not employed.</i>	Coal	Not employed.	She probably slipped when drawing water from an old drift in which water had accumulated. She was found drowned. Inspection and enquiry made.
5	16th October 1 p.m.	Warora Mine, Warora, Chanda, Central Provinces.	Government of India.	Saif Ali, 24, (m.), <i>Engine-driver.</i>	Coal	Not working at the time. Cause of death doubtful.	He was at the colliery on a Sunday and stood upon a tressle to watch soldiers marching along a road. He fell and was dead when picked up. Inspection and enquiry made.

APPENDIX II.

TABLE No. 1.

Indian Mines Act, Number of Mines and Workers, year 1904.

PROVINCE.	District and mineral field.	Number of mines within the scope of the Act.	NUMBER OF MINES.		NUMBER OF MINES INSPECTED DURING THE YEAR.		AVERAGE NUMBER OF PERSONS EMPLOYED DAILY IN AND ABOUT THE MINES								Grand Total below and above-ground.
			Worked by steam.	Not worked by steam.	Once.	Twice or more.	BELOW-GROUND.				ABOVE-GROUND.				
							Adult males.	Adult females.	Children (under 12).	Total below ground.	Adult males.	Adult females.	Children (under 12).	Total above-ground.	
Bengal	Hazaribagh, Giridih	8	6	2	9	9	5,415	2,154	62	7,631	1,926	646	243	2,815	10,446
	Manbhum, Jherria	107	73	34	95	31	11,530	7,231	654	19,415	6,271	3,141	858	10,270	29,685
	Do., Raniganj	17	12	5			1,332	351	12	1,695	522	312	28	862	2,557
	Bankura, "	2	...	2			53	16	...	69	6	7	...	13	82
	Birbhum, "	1	1	...			18	14	...	32	3	5	...	8	40
	Hurdwan, "	109	106	3			16,120	5,601	337	22,058	6,176	3,385	427	9,988	32,046
	Santhal Parganas, Raniganj.	2	2	...	148	59	18	8	...	26	8	5	...	13	39
	Santhal Parganas, Rajmahal.	6	...	6			10	1	1	12	...	...	...	...	12
	Palamau, Daltonganj	1	1	...			400	130	16	546	232	52	12	296	842
	TOTAL	253	201	52	252	99	34,896	15,506	1,082	51,484	15,144	7,553	1,568	24,265	75,749
Central Provinces.	Sambalpur, Rampur	1	1	...			...	...	...	...	38	...	...	38	38
	Narsingpur, Mohpani	1	1	...	2	2	333	131	...	464	166	34	...	200	664
	Chanda, Warora	2	2	...			599	...	...	599	449	53	...	502	1,101
		TOTAL	4	4	...	2	2	932	131	...	1,063	653	87	...	740	1,803
Punjab	Jhelum	11	1	10			1,095	1	14	1,110	441	...	16	457	1,567
	Shahpur	1	...	1	4	2	200	...	20	220	100	...	20	120	340
	Attock	2	...	2			17	1	2	20	16	...	2	18	38
		TOTAL	14	1	13	4	2	1,312	2	36	1,350	557	...	38	595	1,945
Assam	Lakhimpur	4	4	...			552	275	...	827	278	169	29	476	1,303
	Khasia and Jaintia Hills.	1	...	1	4	1	28	4	...	32	...	4	...	4	36
		TOTAL	5	4	1	4	1	580	279	...	859	278	173	29	480	1,339
Baluchistan	Sibi (Khost)	6	6	...			482	...	...	482	209	...	14	223	705
	Quetta (Sor Range)	3	...	3	6	1	94	...	...	94	29	...	...	29	123
	Kalat Bolan (Mach and Degari)	3	...	3			186	...	...	186	58	...	...	58	244
		TOTAL	12	6	6	6	1	762	...	...	762	296	...	14	310	1,072
Burma	Shewbo	1	1	...	...	...	15	21	...	36	26	32	...	58	94
		GRAND TOTAL (COAL.)	289	217	72	268	105	38,497	15,939	1,118	55,554	16,954	7,845	1,649	26,448	82,002
Bengal	B.—MICA.														
	Monghyr	3	...	3			36	...	...	36	64	11	2	77	113
	Hazaribagh	129	...	129	36	20	2,181	688	4	2,873	824	1,129	1,004	2,957	5,830
	Gaya	6	...	6			396	241	62	699	139	71	75	285	984
	TOTAL	138	...	138	36	20	2,613	929	66	3,608	1,027	1,211	1,081	3,319	6,927
Madras	Nellore	56	14	42	5	...	2,606	2,240	187	5,033	410	254	844	1,508	6,541
	Nilgiris	2	...	2			2	...	2	4	31	6	3	40	44
		TOTAL	58	14	44	5	...	2,608	2,240	189	5,037	441	260	847	1,548	6,585
	GRAND TOTAL (Mica)	196	14	182	41	20	5,221	3,169	255	8,645	1,468	1,471	1,928	4,867	13,512
Central Provinces.	C.—MANGANESE ORE.														
	Nagpur	13	...	13	7	...	572	515	14	1,101	282	240	28	550	1,651
	Bhandara	1	...	1			22	10	...	32	5	15	12	32	64
	Balaghat	3	...	3			107	57	...	164	40	57	34	131	295
	TOTAL	17	...	17	7	...	701	582	14	1,297	327	312	74	713	2,010
Madras	Vizagapatam	9	...	9	...	...	1,102	541	...	1,643	186	114	37	337	1,980
Bombay	Belgaum	1	...	1	...	...	...	...	...	...	40	80	5	125	125
		GRAND TOTAL (MANGANESE.)	27	...	27	7	...	1,803	1,123	14	2,940	553	506	116	1,175	4,115

APPENDIX II—continued.

TABLE No. 2.

Classified statement of fatal and serious accidents in and about mines regulated by the Indian Mines Act, during the year 1904.

Province.	District and Mineral field.	Total average number of persons employed daily.	Total output.	Number of separate fatal accidents.	NUMBER OF DEATHS.			Number of serious non-fatal accidents.	NUMBER OF PERSONS SERIOUSLY INJURED.			DEATH-RATES PER 1,000 PERSONS EMPLOYED.			
					Below-ground.	Above-ground.	Total deaths.		Below-ground.	Above-ground.	Total number of persons injured.	Below-ground.	Above-ground.	Below and above-ground.	
Bengal	A.—COAL.														
	Hazaribagh, Giridih	10,446	773,128	4	...	4	29	24	5	29	...	1.42	.38		
	Manbhum, Jherria	29,685	2,884,804	19	17	3	20	14	9	5	14	.87	.29	.67	
	Do., Raniganj	2,557	229,898	...	...	...	...	1	...	1	1	...	...	...	
	Bankura, Do.	82	5,801	...	...	...	...	...	...	...	...	...	...	...	
	Birbhum, Do.	40	2,144	...	...	...	...	...	...	...	...	...	...	...	
	Burdwan, Do.	32,046	3,111,186	17	17	4	21	6	4	2	6	.77	.40	.65	
	Santhal Parganas, Raniganj.	39	1,228	...	...	...	...	...	...	...	...	...	...	...	
	Santhal Parganas, Rajmahal.	12	274	...	...	...	...	...	...	...	...	...	...	...	
	Palamau, Daltonganj	842	50,517	...	...	...	...	1	1	...	1	...	...	...	
TOTAL		75,749	7,058,980	40	34	11	45	51	38	13	51	.66	.45	.59	
Central Provinces.	Sambalpur, Rampur	38	...	...	...	...	...	3	...	3	3	...	...	...	
	Narsingpur, Mohpani	664	26,618	...	...	...	...	...	...	...	...	...	...	...	
	Chanda, Warora	1,101	112,409	1	1	...	1	4	2	2	4	1.67	...	.90	
TOTAL		1,803	139,027	1	1	...	1	7	2	5	7	.94	...	.55	
Punjab	Jhelum	1,567	40,258	1	1	...	1	9	8	1	9	.90	...	.64	
	Shahpur	340	5,000	...	...	...	...	...	...	...	...	...	...	...	
	Attock	38	336	...	...	...	...	...	...	...	...	...	...	...	
TOTAL		1,945	45,594	1	1	...	1	9	8	1	9	.74	...	.51	
Assam	Lakhimpur	1,303	266,265	4	4	1	5	...	...	...	...	4.84	2.10	3.88	
	Khasia and Jaintia Hills.	36	500	...	...	...	...	...	...	...	...	...	...	...	
TOTAL		1,339	266,765	4	4	1	5	...	...	...	...	4.66	2.08	3.73	
Baluchistan	Sibi, Khost	705	38,574	3	3	...	3	...	...	...	...	6.22	...	4.25	
	Quetta, Sor Range	123	6,511	...	...	...	...	...	...	...	...	...	...	...	
	Kalat, Bolan, Mach and Degari.	244	4,782	...	...	...	...	...	...	...	...	...	...	...	
TOTAL		1,072	49,867	3	3	...	3	...	...	...	...	3.94	...	2.80	
Burma	Shwebo	94	1,105	...	...	...	...	...	...	...	...	...	...	...	
	GRAND TOTAL (COAL).		82,002	7,561,338	49	43	12	55	67	48	19	67	.77	.45	.67
Bengal	B.—MICA.														
	Monghyr	113	15	...	...	...	...	...	...	...	...	...	...	...	
	Hazaribagh, Kodarma	5,830	565	4	9	1	10	3	3	2	5	3.13	.34	1.72	
	Gaya	984	246	...	...	...	...	...	...	...	...	...	...	...	
TOTAL		6,927	826	4	9	1	10	3	3	2	5	2.49	.30	1.44	
Madras	Nellore	6,541	238	1	2	...	2	...	...	...	...	.40	...	.30	
	Nilgiris	44	2	...	...	...	...	...	...	...	...	...	...	...	
TOTAL		6,585	240	1	2	...	2	...	...	...	...	.39	...	.30	
GRAND TOTAL (MICA)		13,512	1,066	5	11	1	12	3	3	2	5	1.27	.20	.89	
Central Provinces.	C.—MANGANESE.														
	Nagpur	1,651	66,153	1	1	...	1	...	...	...	...	.90	...	.60	
	Bhandara	64	8,558	...	...	...	...	...	...	...	...	...	...	...	
	Balaghat	295	10,323	...	...	...	...	...	...	...	...	...	...	...	
TOTAL		2,010	85,034	1	1	...	1	...	...	...	...	.77	...	.40	

APPENDIX II—continued.

TABLE No. 2—concluded.

Classified statement of fatal and serious accidents in and about mines regulated by the Indian Mines Act, during the year 1904.

Province.	District and Mineral field.	Total average number of persons employed daily.	Total output.	Number of separate fatal accidents.	NUMBER OF DEATHS.			Number of serious non-fatal accidents.	NUMBER OF PERSONS SERIOUSLY INJURED.			DEATH-RATES PER 1,000 PERSONS EMPLOYED.		
					Below-ground.	Above-ground.	Total deaths.		Below-ground.	Above-ground.	Total number of persons injured.	Below-ground.	Above-ground.	Below and above ground.
			C.—MANGANESE—contd.											
Madras	Vizagapatam	1,980	53,699	...	...	...	...	...	...	...	...	...	...	...
Bombay	Belgaum	125	...	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (MANGANESE).	4,115	138,733	1	1	...	1	...	...	...	...	34	...	2
			D.—LIMESTONE.											
Central Provinces	Jubbulpur, Katni . . .	1,917	49,847	2	1	1	2	...	...	...	...	86	132	104
Punjab	Hoshiarpur	45	1,000	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (LIMESTONE).	1,962	50,847	2	1	1	2	...	...	...	...	84	130	102
			E.—SALT.											
Punjab	Shahpur	69	4,902	...	...	...	...	...	...	...	...	...	...	...
	Jhelum	1,205	94,291	...	...	...	...	7	7	...	7	...	...	...
	Mianwali	55	8,220	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (SALT) .	1,329	107,413	...	...	...	...	7	7	...	7	...	...	...
			F.—GEMS.											
Burma	Mogek	1,553	Carats. 205,294	2	2	...	2	3	1	3	4	178	...	128
			G.—SLATE.											
Bengal Punjab	Monghyr	320	Tons. 213	...	...	...	...	...	...	...	...	...	...	...
	Gurgaon	207	673	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (SLATE)	527	886	...	...	...	...	...	...	...	...	...	...	...
			H.—GOLD.											
Bombay	Dharwar	655	...	1	1	...	1	1	1	...	1	532	...	153
Madras	Nilgiris	24	...	...	...	...	...	...	...	...	...	...	...	...
	Coimbatore	57	...	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	81	...	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (GOLD)	736	...	1	1	...	1	1	1	...	1	422	...	136
			I.—IRON ORE.											
Bengal	Singbhum	300	5,028	...	...	...	...	...	...	...	...	...	...	...
			J.—MAGNESITE.											
Madras	Salem	60	1,315	...	...	...	...	...	...	...	...	...	...	...
			K.—GRAPHITE.											
Madras	Godavari	19	67	...	...	...	...	...	...	...	...	...	...	...
			L.—CORUNDUM.											
Madras	Salem	73	lbs. 106	...	...	...	...	...	...	...	...	...	...	...
			M.—FULLER'S EARTH.											
Central Provinces	Jubbulpur, Katni . . .	...	98	...	...	...	...	...	...	...	...	...	...	...
			N.—COPPER.											
Central Provinces	Jubbulpur	109	...	...	...	...	...	...	...	...	...	...	...	...
			O.—JADE.											
Burma	Myitkyina	1,085	90	...	...	...	...	...	...	...	...	...	...	...
			P.—FIRE-CLAY.											
Central Provinces	Chanda, Warora . . .	...	1,706	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (All Minerals).	107,382	Tons. 7,863,587 Carats 205,294	60	59	14	73	81	60	24	84	82	39	68

* Labour included with coal mines.

APPENDIX II—continued.

TABLE No. 3.

The following table shows the average number of persons working daily in and about mines regulated by the Indian Mines Act during the years 1903 and 1904.

ALL MINES UNDER THE ACT.

Description of workers.	Year 1903.	Year 1904.	Difference
	Below-ground.	Below-ground.	Below-ground.
Adult Males . . .	46,540	48,893	+ 2,353
Adult Females . . .	20,119	21,182	+ 1,063
Children under 12 . .	1,651	1,435	— 216
TOTAL BELOW-GROUND	68,310	71,510	+ 3,200
	Above-ground.	Above-ground.	Above-ground.
Adult Males . . .	20,339	21,427	+ 1,088
Adult Females . . .	10,638	10,646	+ 8
Children under 12 . .	2,908	3,799	+ 891
TOTAL ABOVE-GROUND	33,885	35,872	+ 1,987
TOTAL BELOW AND ABOVE GROUND.	102,195	107,382	+ 5,187

ALL COAL-MINES UNDER THE ACT.

Description of workers.	Year 1903.	Year 1904.	Difference.
	Below-ground.	Below-ground.	Below-ground.
Adult Males . . .	36,461	38,497	+ 2,036
Adult Females . . .	15,212	15,939	+ 727
Children under 12 . .	1,164	1,118	— 46
TOTAL BELOW-GROUND	52,837	55,554	+ 2,717
	Above-ground.	Above-ground.	Above-ground.
Adult Males . . .	16,792	16,954	+ 162
Adult Females . . .	8,559	7,845	— 714
Children under 12 . .	1,373	1,649	+ 276
TOTAL ABOVE-GROUND	26,724	26,448	— 276
TOTAL BELOW AND ABOVE GROUND.	79,561	82,002	+ 2,441

TABLE No. 4.

The following table shows the fluctuations in the output of the principal minerals raised from mines classed under the Indian Mines Act, 1901. The other minerals raised are gems, slate, iron ore, magnesite, graphite, corundum, clay, copper, jade and fire-clay.

Year.	Coal.	Maganese Ore.	Mica.	Limestone.	Salt.
1899 . . .	4,622,242	87,126	543	1,177	78,754
1900 . . .	5,452,408	92,458	916	...	79,996
1901 . . .	6,251,522	162,057	995	28,000	90,242
1902 . . .	6,790,507	144,037	1,068	30,091	87,361
1903 . . .	6,812,725	171,223	1,005	35,238	90,667
1904 . . .	7,561,338	138,733	1,066	50,847	107,413

APPENDIX II—continued.

TABLE No. 5.

The following table shows the amount of coal raised, the average number of persons working daily and the death-rates during the years 1899 to 1904 in respect of *Coal* mines under the Indian Mines Act.

Year.	Amount of coal raised.	Average number of persons working daily below and above ground.	Number of deaths below and above-ground.	DEATH-RATES.	
				Per 1,000,000 tons raised.	Per 1,000 persons working daily below and above-ground.
1899 . . .	4,622,242	65,795	73	15.79	1.11
1900 . . .	5,452,408	80,003	52	9.53	.64
1901 . . .	6,251,522	85,361	58	9.28	.67
1902 . . .	6,790,507	89,505	59	8.69	.66
1903 . . .	6,812,725	79,561	67	9.83	.84
1904 . . .	7,561,338	82,002	55	7.27	.67

TABLE No. 6.

Fatal accidents and deaths in mines regulated by the Indian Mines Act, 1901, during the year 1904, classified according to the mineral worked.

MINERAL.	PROVINCE AND MINERAL AREA.	Number of separate fatal acci- dents.	NUMBER OF DEATHS.								TOTAL BELOW AND ABOVE- GROUND.
			BELOW-GROUND.				ABOVE-GROUND.				
			Adult males.	Adult females.	Children (under 12)	TOTAL.	Adult males.	Adult females.	Children under 12.	TOTAL.	
COAL . . .	Assam . . .	4	4	...	...	4	...	1	...	1	5
	Baluchistan, Khost .	3	3	...	...	3	...	...	...	...	3
	Bengal { Giridih . { Jherria . { Raniganj .	4	...	...	...	...	2	2	...	4	4
		19	13	4	...	17	3	...	...	3	20
		17	14	3	...	17	4	...	...	4	21
	TOTAL (BENGAL) .	40	27	7	...	34	9	2	...	11	45
	Central Provinces .	1	1	...	...	1	...	...	...	...	1
	Punjab . . .	1	1	...	...	1	...	...	...	...	1
	TOTAL COAL .	49	36	7	...	43	9	3	...	12	55
MICA . . .	Bengal . . .	4	8	1	...	9	1	..	...	1	10
	Madras . . .	1	2	...	...	2	...	...	...	...	2
	TOTAL MICA .	5	10	1	...	11	1	..	...	1	12
MANGANESE . .	Central Provinces	1	1	...	...	1	...	...	...	...	1
LIMESTONE . .	Ditto . . .	2	1	...	...	1	..	1	...	1	2
GEMS . . .	Burma . . .	2	2	...	...	2	...	..	...	...	2
GOLD . . .	Bombay . . .	1	1	...	...	1	...	...	...	...	1
GRAND TOTAL ALL MINERALS .		60	51	8	...	59	10	4	...	14	73

APPENDIX II—*continued.*

TABLE NO. 7.

Fatal accidents and deaths classified according to causes.

CAUSES OF ACCIDENTS.	1904.				
	Number of separate accidents.	DEATHS.			
		Adult Males.	Adult Females.	Children (under 12).	TOTAL.
BELOW-GROUND.					
Explosions of fire-damp	2	2	...	...	2
FALLS IN MINES.					
Falls of roof, stone or coal	10	10	2	...	12
„ „ sides	14	19	5	...	24
TOTAL	24	29	7	...	36
IN SHAFTS.					
Ropes and Chains breaking	1	1	...	...	1
Whilst ascending or descending by machinery	1	1	...	...	1
Falling into shaft from the surface	3	3	...	...	3
Falling from a part of the way down	1	1	...	...	1
Things falling from surface	1	1	...	...	1
TOTAL	7	7	...	...	7
MISCELLANEOUS BELOW-GROUND.					
By explosives	3	4	...	...	4
Irruptions of water and falling into water	1	1	...	...	1
Haulage	7	6	1	...	7
By other causes	2	2	...	...	2
TOTAL	13	13	1	...	14
TOTAL BELOW-GROUND	46	51	8	...	59
ABOVE-GROUND.					
By machinery	1	1	...	...	1
On railways or tramways belonging to mine	7	4	3	...	7
Miscellaneous	6	5	1	...	6
TOTAL ABOVE-GROUND	14	10	4	...	14
GRAND TOTAL	60	61	12	...	73

APPENDIX II—continued.

TABLE No. 8.

Mines opened and closed during the year ending 31st December 1904.

PROVINCE.	DISTRICT.	Number of mines opened.	Number of mines closed.
A.—COAL.			
BENGAL	Hazaribagh, Giridih	...	1
	Jherria, Manbhum	...	33
	" Raniganj	1	14
	Bankura, "	...	1
	Burdwan "	6	8
	Santhal Parganas, Rajmahal	2	...
	Palamau, Daltonganj	...	1
	TOTAL	9	58
CENTRAL PROVINCES	Chanda	1	...
PUNJAB	Jhelum	10	...
	Attock	2	...
	TOTAL	12	...
BALUCHISTAN	Thal Chotiali	...	1
BURMA	Shwebo	...	1
	TOTAL (COAL)	22	60
B.—MICA.			
BENGAL	Monghyr	2	3
	Hazaribagh	69	69
	Gaya	2	...
	TOTAL	73	72
MADRAS	Nellore	25	4
	Nilgiris	1	...
	TOTAL	26	4
	TOTAL (MICA)	99	76
C.—MANGANESE.			
CENTRAL PROVINCES	Nagpur	4	7
	Bhandara	1	...
	TOTAL	5	7
BOMBAY	Belgaum	1	...
	TOTAL (MANGANESE)	6	7
D.—LIMESTONE.			
CENTRAL PROVINCES	Jubbulpore	1	...
E.—SLATE.			
BENGAL	Monghyr	1	...
F.—GOLD.			
MADRAS	Nilgiris	...	1
	Coimbatore	...	2
	TOTAL	...	3
Bombay	Dharwar	2	...
	TOTAL (GOLD)	2	3

APPENDIX II—continued.

TABLE 9.

Statement of Prosecutions instituted under the Indian Mines Act (VIII of 1901), during the year ending 31st December 1904.

PROVINCE.	District.	Number of prosecutions.	Number of persons prosecuted.	Number convicted.	REMARKS.
		<i>Nil</i>	<i>Nil</i>	<i>Nil</i>	

TABLE No. 10.

Number of Inspections by District and other Officers, 1904.

District and Mineral Area.		NO. OF MINES INSPECTED.		
		Once.	Twice.	More than twice.
<i>Coal.</i>				
Bengal—				
Bankura	} Raniganj {	2	...	...
Birbhum		1	...	...
Burdwan		6	...	...
Maubhum, Jherria		1	1	1
Hazaribagh, Giridih		3	...	...
Palamau, Daltonganj		1	...	...
		14	1	1
Central Provinces, Narsinghpur, Mohpani		1	...	...
Burma, Shwebo		1	...	...
Punjab, Jhelum, Dandot		3	...	...
„ Shahpur		1	...	...
	TOTAL AT COAL MINES	20	1	1
<i>Mica.</i>				
Bengal, Gya		1	...	...
Madras, Nellore		8	3	3
	TOTAL AT MICA MINES	9	3	3
<i>Manganese.</i>				
Central Provinces—Nagpur		13	...	...
Bhandara		1	...	...
Balaghat		1	...	...
	TOTAL AT MANGANESE MINES	15	...	...
<i>Limestone.</i>				
Central Provinces, Jubbulpur, Katni		15	...	...
<i>Gold.</i>				
Madras, Coimbatore		...	...	1
Bombay, Dharwar		1	1	...
	TOTAL AT GOLD MINES	1	1	1
	GRAND TOTAL	60	5	5

APPENDIX III.

INSPECTIONS AND ENQUIRIES MADE UNDER THE LAND ACQUISITION (MINES) ACT, 1885,
DURING THE YEAR ENDING 31ST DECEMBER 1904.

Name of mine and description of land acquired.	Name of owner of the mine.	Date of gazetted declaration.	Name of Inspector making the enquiry.
1. Brahmanbarari and Bhulanbarari Coal Mine— Extension of the Joyrampur siding of the East Indian Railway.	East Indian Coal Company, Limited.	31st August 1904 .	G. F. Adams.
2. Lodhna Coal Mine— Bhaga Branch of the East Indian Railway .	Lodhna Colliery Company, Limited.	Ditto . .	Ditto.
3. Alkusa, Kiska and Kustore Coal Mines— Damuda Branch of the East Indian Railway or near mile 172 and Kiska, Kustore, Nayadih and Phillip's Assisted sidings.	Raniganj Coal Association, Limited.	Ditto . .	Ditto.
4. Chara Coal Mine— Mungulpore-Chara Branch of the East Indian Railway.	Ondal Coal Company, Limited.	16th August 1904 .	James Grundy.
5. Sudamdih Coal Mine— Land not acquired	J. T. Sullivan	Inspected but no action taken as the land was found to be not acquired, <i>vide</i> letter No. 2841 T. R., dated 22nd October 1904, from Bengal, Revenue Department, Land Revenue Branch.	Ditto.
6. Kusunda and Nyadee Coal Mine— Kustore or Alkusa siding and the Damuda Branch of the East Indian Railway.	Kusunda and Nyadee Collieries, Limited.	17th November 1904 .	Ditto.
7. Bhuskajuri Coal Mine— Bhuskajuri assisted siding, East Indian Railway.	Bhuskajuri Coal Company, Limited.	14th March 1905 .	Ditto.
8. Jamgram Coal Mine— Colliery assisted siding and the Ondal Loop Line of the East Indian Railway near mile 138.	Jamgram Coal Company, Limited.	14th February 1905 .	Ditto.
9. Seebpore Coal Mine— Seebpore assisted siding	Katras Jherria Coal Company, Limited.	3rd September 1904 .	Ditto.
10. Panchgatchia Coal Mine— Panchgatchia assisted siding and the main line of the Ikra Branch, East Indian Railway, at and near mile 137.	Lutchipore Coal Company, Limited.	5th December 1904 .	Ditto.
11. Pretoria Coal Mine— New siding to B. Pit	Seebpore Coal Company, Limited.	3rd September 1904 .	Ditto.
12. Bhuggutdih Coal Mine— Bhuggutdih siding	Bengal Nagpur Coal Company, Limited.	30th November 1904 .	G. F. Adams.
13. Jamadoba Coal Mine— No. 4 siding off the Jamadoba Loop of the Bengal Nagpur Railway.	Indian Collieries Syndicate, Limited.	31st October 1904 .	Ditto.
14. Jamuria Coal Mine— Ikra Branch and Jamuria Railway Station of the East Indian Railway.	Equitable Coal Company, Limited.	22nd November 1904 .	James Grundy.

APPENDIX III—concluded.

Name of mine and description of land acquired.	Name of owner of the mine.	Date of gazetted declaration.	Name of Inspector making the enquiry.
15. Dobari Coal Mine— Dhanbad-Jherria Chord line near its junction with the Kusunda-Jherria Branch of the East Indian Railway.	R. N. Bagchi . . .	.....	G. F. Adams.
16. Toposi (Jotejanaki) Coal Mine— Singaran assisted siding, East Indian Railway.	Singaran Coal Syndicate, Limited.	3rd December 1904 .	James Grundy.
17. Surataur Coal Mine— Surataur siding of the East Indian Railway	P. K. Roy . . .	22nd November 1904 .	G. F. Adams.
18. Sejua Coal Mine— Sejua siding	Sejua Coal Company, Limited.	28th February 1905 .	Ditto.
19. Nandi-Bathanbaid Coal Mine— Bengal Coal Company's siding and the Ikra Branch, East Indian Railway.	Bhalgora Colliery Company.	.....	James Grundy.
20. Aldih Coal Mine— Aldih siding (Sanctoria Branch), Bengal Nagpur Railway.	Aldih Coal Company, Limited.	14th February 1905 .	Ditto.
21. Budroochuck Coal Mine— A siding off the Jherria-Katras Line of the East Indian Railway.	Sejua Coal Company, Limited.	1st May 1905 . .	Ditto.
22. Choitodih Coal Mine— Choitodih siding of the East Indian Railway.	Lutchipore Coal Company, Limited.	20th February 1905 .	G. F. Adams.

APPENDIX IV.

RULES, AND ADDITIONS TO THE ACT MADE DURING THE YEAR 1904.

No. 864—68-20.

GOVERNMENT OF INDIA.

DEPARTMENT OF REVENUE AND AGRICULTURE.

GEOLOGY and MINERALS.

Dated Calcutta, the 10th March 1904.

NOTIFICATION.

IN exercise of the powers conferred by section 20 of the Indian Mines Act, 1901 (VIII of 1901), the Governor General in Council is pleased to make the following rules for application to all coal mines in British India :—

I.—SINGLE SHAFTS AND OUTLETS.

Rule 1.—(a) The owner, agent, or manager of a mine shall not employ any person in the mine, or permit any person to be in the mine for the purpose of employment therein, unless there are at least two shafts or outlets with which every seam for the time being at work shall have a communication, so that such shafts or outlets shall afford separate means of ingress and egress available to the persons employed in every such seam.

(b) Proper arrangements shall be made for persons to descend to and ascend from the mine at each of such shafts or outlets. If apparatus is necessary, it shall be kept on the works belonging to the mine, and shall be constantly available for use.

(c) Such shafts or outlets shall not at any point be nearer to one another than 45 feet, and each shall be connected with the other by means of a communication not less than 4 feet high and 4 feet wide.

(d) The foregoing provisions of this rule with respect to shafts and outlets shall not apply—

(i) while a shaft is being sunk or an outlet being made ;

(ii) to any working for the purpose of making a communication between two or more shafts or outlets ;

(iii) to any working for the sole purpose of searching for or proving mineral ; so long as not more than 40 persons are employed below ground at any one time in the whole of the different seams in connection with a single shaft or outlet.

(e) In cases where there are special difficulties which make compliance with the foregoing provisions of this rule not reasonably practicable, the mine may be exempted therefrom by the Local Government, subject to such conditions as it may think fit to impose.

(f) So much of this rule as requires two shafts or outlets to be separated by a distance of not less than 45 feet shall not apply to any shafts sunk or commenced to be sunk before this rule comes into force.

II.—RAISING AND LOWERING PERSONS.

Rule 2.—In every mine which is usually entered by means of machinery the following provisions shall have effect, namely :—

(a) A single linked chain shall not be used for lowering or raising persons in any working shaft or plane, except for the short coupling chain attached to a cage, skip, bucket, or tub.

APPENDIX IV—*continued.*

- (b) There shall be attached to every machine worked by steam or mechanical power, and used for lowering or raising persons, an adequate brake or brakes, and a proper indicator (in addition to any mark on the rope) showing, to the person who works the machine, the position of the cage, skip, bucket, or tub in the shaft; and, if the drum is not on the crank shaft, there shall be an adequate brake on the drum shaft:

Provided that in the case of a shaft not exceeding 100 feet in depth or of a shaft in course of sinking so much of this rule as requires an indicator shall not apply.

- (c) Every apparatus on or in which persons ride in every working shaft, shall be provided with a sufficient cover overhead, except in a shaft not exceeding 150 feet in depth where buckets are used for winding or in a shaft in course of sinking, or where persons are employed at work in a shaft.
- (d) Every working shaft used for the purpose of drawing mineral, or for lowering or raising persons, shall, if exceeding 150 feet in depth, be provided with proper means of communicating distinct and definite signals from the bottom of the shaft, and from every entrance for the time being in use between the surface and the bottom of the shaft, to the surface, and except in the case of a shaft in course of sinking, from the surface to the bottom of the shaft and to every entrance for the time being in use between the surface and the bottom of the shaft.
- (e) Every working shaft (except a shaft in course of sinking) used for lowering or raising persons shall, if exceeding 100 feet in depth, be provided with guides.
- (f) There shall be on the drum of every machine used for lowering or raising persons such flanges or horns or other appliances as may be sufficient to prevent the rope from slipping. The rope shall be securely fastened to the drum, and there shall be at least two turns of the rope on the drum when the cage, skip, bucket, or tub is at the bottom of the shaft. After any stoppage of winding for more than two hours, the cage, skip, bucket, or tub shall, before any person is allowed to ride therein, be run a complete trip up and down the working portion of the shaft at least once, to ensure that everything is in good working order.
- (g) A competent person or persons appointed by the owner, agent, or manager for the purpose shall, once at least in every twenty-four hours, examine the state of the external parts of the machinery and of the head-gear, ropes, chains, and other similar appliances of the mine which are in actual use both above ground and below ground, and shall, once at least in every week, examine the state of the shafts by which persons ascend or descend and the state of the guides and the conductors in the shafts, and shall without delay write or cause to be written a true report of the result of such examination; and every such report shall be recorded in a paged book to be kept at the mine for the purpose, and shall be signed and dated by the person who made the examination.

III.—ROADS AND WORKING PLACES.

Rule 3.—The roofs and sides of all travelling roads and working places shall be made and kept secure.

Rule 4.—(a) Every part of a mine in or through which any person has to work or pass shall be inspected at least once during every twenty-four hours by a competent person or persons appointed by the owner, agent, or manager for the purpose of ascertaining the condition thereof so far as the presence of gas, ventilation, roof, sides, and general safety are concerned.

Provided that when a mine has been unworked for more than twenty-four hours, the inspection shall be made within two hours before any workman is allowed to pass a station or stations appointed by the manager at the entrance to the mine or different parts of the mine, as the case may require.

(b) Every person who makes such inspection shall without delay write or cause to be written a true report of the result of such inspection either during or at the close of such twenty-four hours, and every such report shall be recorded in a paged book to be kept at the mine for the purpose, and shall be signed and dated by the person who made the inspection.

Rule 5.—If at any time it is found by the person for the time being in charge of a mine or any part thereof that, by reason of inflammable gases prevailing in the mine or part, or of any cause whatever, the mine or part is dangerous, every workman shall be withdrawn from the mine or part, and a competent person appointed for the purpose shall inspect the mine or part, and, if the danger arises from inflammable gas, shall do so with a locked safety-lamp, and in every case shall make a true report of the condition of the mine or part; and no workman shall, except in so far as is necessary for enquiring into the cause of danger, or for the removal thereof, or for exploration, be re-admitted into the mine or part, until the same is stated by the person appointed as aforesaid not to be dangerous. Every such report shall be recorded without delay in a paged book, which shall be kept at the mine for the purpose, and shall be dated and signed by the person who made the inspection.

Rule 6.—Where a place is likely to contain a dangerous accumulation of water, the

APPENDIX IV—*continued.*

working approaching that place shall not at any point within 100 feet thereof exceed 8 feet in width or height, and there shall be constantly kept at a sufficient distance, not being less than 10 feet in advance, at least one bore-hole near the centre of the working, and sufficient bore-holes on each side, and, where necessary, above or below.

Rule 7.—Every entrance to any place, which is not in actual use or course of working, and extension, shall be properly fenced across the whole width of the entrance, so as to prevent persons inadvertently entering the same.

Rule 8.—Every underground plane on which persons travel, and which is self-acting or worked by an engine, shall be provided (if exceeding 100 feet in length) with some proper means of communicating distinct and definite signals between the stopping places and the ends of the plane, and shall be provided in every case with sufficient manholes for places of refuge, occurring at intervals of not more than 60 feet, and being not less than 4 feet in height, 2 feet 3 inches in width, and 2 feet in depth.

IV.—PLANS.

Rule 9.—The owner, agent, or manager of every mine shall keep in the office at the mine an accurate plan of the workings of the mine, on a scale not smaller than 200 feet to the inch, showing the workings up to a date not more than six months previously. It shall also show the shaft openings, and all those important surface marks within the boundaries, such as railways, which lie within 600 feet of any part of the mine workings, also the general direction and rate of dip of the strata, together with a statement of the depth of each shaft and a section of the seam or seams being worked :

Provided that the owner, agent, or manager of a mine worked in the open and not under cover shall be exempt from the necessity of keeping such plans, unless required to do so by the Chief Inspector of Mines.

Rule 10.—The owner, agent, or manager of every mine shall, at any time on the request of the Chief Inspector of Mines, or of any Inspector of Mines, produce to him at the office at the mine such plan and section, and also, on the like request, mark on such plan and section, the then state of the workings of the mine ; and the Chief Inspector or Inspector shall be entitled to examine the plan and the section, and for official purposes to make or have a copy made of any part thereof respectively.

Rule 11.—If the owner, agent, or manager of a mine fails to keep, or wilfully refuses to produce or allow to be examined, the plan and section aforesaid, or wilfully withholds any portion thereof, or wilfully refuses on request to mark thereon the state of the workings of the mine, or conceals any part of these workings, or produces any imperfect or inaccurate plan or section, he shall (unless he shows that he was ignorant of the concealment, imperfection, or inaccuracy) be guilty of an offence against these rules.

Rule 12.—When a mine or seam is abandoned or the working thereof has been discontinued for more than a year, the owner of the mine or seam shall, within three months after the abandonment or within fifteen months after the discontinuance of working, send to the Chief Inspector of Mines the plan and sections which have been made for the mine or seam in compliance with these rules and showing the nearest surface boundaries in relation to the underground workings, or a true and accurate copy of the same ; but no person except an Inspector of Mines shall be entitled, without the consent of the owner of the mine or seam, to see the plan when so sent until after the expiration of twelve years from the time of the abandonment.

V.—EXPLOSIVES.

Rule 13.—No explosive substance shall be used below ground in a mine except under the following conditions, namely :—

(a) It shall not be stored in the mine.

(b) It shall not be taken into the mine except in secure cases or canisters, containing not more than five pounds each, and a workman shall not have in use or keep for use at one time in any one place more than one of such cases or canisters :

Provided that the Chief Inspector may, in special cases and by order in writing, permit, subject to such limitations as he may prescribe, the use at one time in one place of more than one of such cases or canisters.

(c) In the process of charging or stemming for blasting, no person shall use or have in his possession any iron or steel pricker, scraper, tamping-rod or stemmer, and only clay or other non-inflammable substances shall be used for tamping or stemming.

(d) When a hole has been charged, the explosive shall not be unrammed, and no hole shall be bored at a distance of less than 12 inches from any hole where a charge has missed fire.

(e) No detonator shall be carried or kept in the same case or canister with any other explosive material, or inserted into the priming cartridge until immediately before it is used.

APPENDIX IV—*continued.*

- (f) No explosive shall be forcibly pressed into a hole of insufficient size.
- (g) In any place which is dry and dusty, or in which the use of a locked safety-lamp is for the time being required by or in pursuance of these rules, no shot shall be fired, except by and under the direction of a competent person appointed by the manager of the mine.

VI.—VENTILATION AND LIGHTING.

Rule 14.—An adequate amount of ventilation shall be constantly produced in every mine to dilute and render harmless smoke and noxious gases to such an extent that the working places of the shafts, levels, and workings of the mine, and the travelling roads to and from these working places shall be in a fit state for working and passing therein.

Rule 15.—No lamp or light other than a locked safety-lamp shall be allowed or used—

- (a) in any place in a mine in which there is or is likely to be any such quantity of inflammable gas as to render the use of naked lights dangerous; or
- (b) in any working approaching near a place in which there is likely to be an accumulation of inflammable gas;

and when it is necessary to work the coal in any part of a ventilating district with safety-lamps, it shall not be allowable to work the coal with naked lights in another part of the same ventilating district situated between the place where such lamps are being used and the return airway.

Explanation.—For the purposes of this rule, the expression “ventilating district” means such part of a seam as has an independent intake commencing from a main intake air course, and an independent return airway terminating at a main return air course.

Rule 16.—Whenever safety-lamps are used, they shall be so constructed that they may be carried with safety against the air current ordinarily prevailing in the mine.

Rule 17.—In any mine or part of a mine in which the use of safety-lamps is for the time being required by or in pursuance of these rules, the following provisions shall have effect, namely:—

- (a) A competent person shall be appointed by the manager to clean, trim, examine, and securely lock all such lamps before they are taken into the workings for use, and such lamps shall not be used until they have been so examined and found to be in safe working order and securely locked.
- (b) No safety-lamp shall be unlocked except at the appointed lamp station, or for the purpose of firing a shot.
- (c) No person, unless he has been authorised in writing by the manager either for the purpose of examining safety-lamps or for the purpose of firing shots, shall have in his possession any contrivance for opening the lock of a safety-lamp.

Explanation.—For the purposes of this rule, the term manager includes an under-manager and any person for the time being carrying on the duties of the manager.

- (d) No person shall have in his possession any unlocked safety-lamp, naked light, match, smoking apparatus, or apparatus of any kind for striking a light, except within a completely closed chamber attached to the fuse of the shot.

Rule 18.—Where the use of safety-lamps is for the time being required by or in pursuance of these rules, the position of the lamp stations for lighting or relighting the lamps shall not be in the return air.

VII.—MISCELLANEOUS.

Rule 19.—Every side entrance to a mine from the surface and the top, and all entrances between the top and the bottom including the sump (if any) of every working ventilating, or pumping shaft, shall be properly fenced: but this shall not be taken to forbid the temporary removal of the fence for the purpose of repairs or other operations, if proper precautions are used. Shafts temporarily or permanently out of use shall be properly fenced.

Rule 20.—Every fly wheel and all exposed and dangerous parts of the machinery used in or about a mine shall be kept securely fenced.

Rule 21.—Where no enactment for the regulation and inspection of steam-boilers and prime-movers is for the time being in force, every steam-boiler, whether separate or one of range, shall have attached to it a proper safety-valve, and also a proper steam-gauge and water gauge to show respectively the pressure of steam and the height of water in each boiler.

Rule 22.—Ambulances or stretchers with splints and bandages shall be kept ready at hand in a convenient place and in good and serviceable order at every mine.

Rule 23.—Copies of all rules made under the Indian Mines Act, 1901, shall be kept at every mine, and shall be produced at any time on the request of an Inspector of Mines.

Rule 24.—Where the natural strata are not safe, every working or pumping shaft shall be securely cased, lined, or otherwise made secure.

APPENDIX IV—concluded.

Rule 25.—If in any mine the winding apparatus is not provided with some automatic contrivance to prevent over-winding, then the cage, skip, bucket, or tub shall not, when persons are being raised in it, be wound up at a speed exceeding three miles an hour after it has reached a point in the shaft to be fixed by the special rules made for the mine under section 21 of the Indian Mines Act, 1901.

Rule 26.—Where any person required by these rules, or by any special rule made under section 21 of the Indian Mines Act, 1901, to make any report is unable to write, he shall be present when his report is written for him, and shall have it read over to him, and shall attach his thumb-mark to it. The person writing the report shall also sign his name at the end, together with a statement that it has been read over to the person for whom it was written.

J. WILSON,

Secretary to the Government of India.

NOTIFICATION.

No. 3842—86-15.

DATED CALCUTTA, 8TH DECEMBER 1904.

In exercise of the power conferred by section 20 of the Indian Mines Act, 1901 (VIII of 1901), the Governor General in Council is pleased to make the following rule for application to all mines in British India :—

RULE.

The managing agent of a mine, or, if there is no managing agent, the owner or the manager of a mine as may be determined by the Magistrate of the district, shall furnish to the Chief Inspector of Mines in India, Calcutta, through the Magistrate of the district, an annual return of the output of the mine and of the labour employed therein in the form set forth below. The return shall reach the Magistrate of the district not later than the 1st February in each year, and shall relate to the immediately preceding calendar year.

Statement of output and labour at *for the year ending 31st December*
190 .

Province

District

Mineral worked.

NAME AND LOCALITY OF MINE.	Date of opening.	NAME AND POSTAL ADDRESS OF			Nature of moving power.	Total output.	Total value of output in rupees.	AVERAGE NUMBER OF PERSONS EMPLOYED DAILY.									REMARKS.
		Owner.	Managing Agent.	Manager.				ABOVE GROUND.				BELOW GROUND.				Grand total (column 12 + column 16).	
								Male adults.	Female adults.	Children (under 12).	Total.	Male adults.	Female adults.	Children (under 12).	Total.		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

(1) *Column 7.*—The output in this column should be given in carats in the case of gems, in ounces in the case of gold and in tons in the case of coal and other minerals dealt with.

(2) *Column 8.*—The value of the mineral to be entered in this column should be based on the actual or estimated wholesale price of the mineral at the pit's mouth. In the case of coal sold into waggons at the colliery, the cost of loading should be deducted from the selling price.

(3) *Columns 9 to 17.*—The average daily number of persons employed is conveniently obtained by dividing the aggregate number of daily attendances (permanent and temporary) by the number of working days. Every person of or over 12 years of age should be entered as an adult.

No.

FORWARDED to the Chief Inspector of Mines in India, through the District Magistrate of

Signature

Managing Agent,

P. O.

Dated

J. WILSON,

Offg. Secretary to the Government of India.



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on 01 February, 2020

